DOCUMENT RESUME

ED 418 275 CE 076 201

AUTHOR	Becker, Franklin; Tennessen, Carolyn M.
TITLE	Social Connectivity in the Mobile Workplace. Workscape 21: The Ecology of New Ways of Working.
INSTITUTION	State Univ. of New York, Ithaca. Coll. of Human Ecology at Cornell Univ.
PUB DATE	1995-00-00
NOTE	88p.
AVAILABLE FROM	International Workplace Studies Program, E-213 MVR Hall, Cornell University, Ithaca, NY 14853 ($30).
PUB TYPE	Reports - Research (143)
EDRS PRICE	MF01/PC04 Plus Postage.
DESCRIPTORS	Adult Education; *Collegiality; Cooperation; *Interpersonal Relationship; *Mobility; Organizational Change; *Organizational Communication; Organizational Development; Peer Relationship; *Professional Isolation; *Socialization; Work Environment
IDENTIFIERS	*Mobile Workplaces; Virtual Offices

ABSTRACT

A study examined the social implications of a workplace strategy in which employees who previously worked together in a main office became virtual office workers. The study site was a Digital Equipment Corporation flexible work program implemented at its Newmarket, England, office, where a large traditional office was closed and its employees became mobile workers. Thirteen employees representing all job types--consultants, customer service, and sales personnel--were interviewed. Findings indicated the new mobile work pattern was successful from an organizational perspective, but the response was more mixed in terms of individual employees' reactions. Mobile workers developed a new appreciation for face-to-face contacts. Unplanned interactions involved intense sharing and catching up. Informal socialization declined significantly. Different types of socialization occurred in different locations. Cross-functional and brainstorming communications were primarily handled face to face and were less common. The telecenter support staff, as the only permanent staff, became the informal social directors of the organization. Coping strategies included turning to the community and the development of new community-oriented hobbies and activities. Service employees and systems integration consultants who had busy work schedules at client sites seemed least concerned about the social changes in the workscape. Salespeople's' reactions were mixed. The technical consultants who had worked closely together had a difficult time adjusting. (Contains 65 references.) (YLB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 418 275

Workscape 21

The Ecology of New Ways of Working

Social Connectivity in the Mobile Workplace

Franklin Becker
Carolyn M. Tennessen

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY
F Becker
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

Cornell University International Workplace Studies Program

CE076201

BEST COPY AVAILABLE

Workscape 21

The Ecology of New Ways of Working

Social Connectivity in the Mobile Workplace

Franklin Becker
Carolyn M. Tennessen

Cornell University International Workplace Studies Program
New York State College of Human Ecology
E213 MVR Hall, DEA Department
Ithaca, NY 14853
607/255-1950 tel
607/255-3542 fax

© 1995

Cornell University
International Workplace Studies Program

1994-1995 Consortium Members

Arthur Andersen and Company, SC, USA

ASPA bv, Netherlands

Citibank, USA

Eastman Kodak, USA

Ernst & Young, UK & USA

General Electric Company, USA

Herman Miller, USA

IBM, USA

Kokuyo Company, Japan

Mobil, USA

NYNEX, USA

Private Patients Plan, UK

Rijksgebouwendienst, Netherlands

Shell Oil Company, USA

Shimizu Institute of Technology, Japan

Silicon Graphics, Inc., USA

Sprint, USA

Steelcase, USA

Sun Microsystems, USA

Xerox, USA

Foreword

The International Workplace Studies Program is a research program based at Cornell University in Ithaca, New York. The program was launched in 1989 and is supported by a consortium of private and public sector organizations in the United States, the United Kingdom, Europe, and Japan. The IWSP mission is to generate research-based information related to the planning, design, and management of facilities that contribute to the development of more competitive and effective organizations.

Acknowledgments

The authors wish to express their appreciation to Digital Equipment Corporation in the United Kingdom for providing the research site for this study. We are indebted to Stephen Jupp, Principal, Flexible Working Practices, Digital Equipment Corporation, UK, for his willingness to answer endless questions and to thoroughly read earlier drafts of this report to make sure we had all our facts straight. We would also like to thank Ray Costello, former Newmarket Office Manager, Susan Wiseman, former Systems Integration Team Leader at Newmarket, and Rosemary Foreman, Newmarket Sales Secretary, for their time and many extra efforts to support this research. We are sincerely grateful to all the Digital employees who took time from their busy schedules to serve as interviewees.

Finally, the authors want to thank Lisa Dahl, IWSP Research Coordinator for her tireless editing of this report.

Executive Summary

In response to competitive pressures to reduce costs while improving the quality and speed of service to customers, organizations in industries as diverse as computers, insurance and advertising have been implementing a variety of new workplace strategies. Many of these involve some form of flexible, remote, or mobile work. The expectation is that the employee will work outside the conventional office in alternative work settings ranging from the home to a hotel lobby or a customer's premises part of each day or week. A consistent finding in studies of employee responses to flexible work practices that involve working remotely from a central office is that employees feel organizationally disconnected and socially isolated.

This is a critical issue given the importance employees ascribe to feeling connected, and to the value of organizational learning and building "communities of practice" (Brown & Duguid, 1991) that support effective organizational functioning. This research examined the social ramifications of a flexible work program in which the firm addressed the social connectivity issue through a series of formal and informal policies and practices over the course of a year after implementation.

Research Goals

- How are employees affected by the social changes to their work environment?
- How do employees cope with the reduced opportunities for face-to-face contact?
- How are functions such as informal organizational learning carried out?

Specific Research Questions

- What was the effect on face-to-face interactions?
- What happened to the informal office community?
- How did employees cope with the loss of social contact?
- How was organizational learning and sharing conducted?
- What was the effect on employees' feeling of organizational connectivity and commitment?
- Were there differences in employees' reactions based upon demographics or job function?

Research Site and Sample

A Digital Equipment Corporation flexible work program implemented at its Newmarket, England office in April 1994 served as the study site. At this location a large traditional office was closed and its employees became mobile workers. Employees were expected to work from a Digital telecenter, a telecenter in a Digital selling partner office, from other Digital offices anywhere in the UK, from their customers' offices, and from their cars, hotel lobbies, and even a supermarket. The nearly 100 mobile workers included consultants, customer service, and sales personnel based at a nonterritorial telecenter located within a Digital warehouse and distribution center on the outskirts of Newmarket, about fifty miles north of London.

A total of 13 Newmarket employees representing all job types were interviewed. Interviews took place in many of the work locations used by the mobile workers, including the Newmarket telecenter, the local supermarket cafeteria, a hotel lobby, a restaurant, and a home office.

Summary of Key Findings

Communication

- Mobile workers developed a new appreciation for face-to-face contacts. They spent less time together as mobile workers but when they were together, spent more time socializing.

- Unplanned interactions involved intense sharing and catching up with one another. Meetings, which once were considered an annoyance and not taken seriously, were now eagerly anticipated. The mobile workers actively participated in and appreciated them.

- Socialization was both formal (planned meetings) and informal (organizational learning, informal sharing and trust-building, and simply spending time with friends). Informal socialization declined significantly, in part because the formerly active sports and social club disintegrated in the flexible work environment.

- Different types of socialization occurred in different locations. Planned meetings were held in the telecenters and other Digital offices, as well as hotel lobbies and a nearby supermarket. Informal socializing (including work-related topics) occurred over pub lunches or in the supermarket cafeteria, depending upon the time of day and how much time was available.

- Cross-functional and brainstorming communications were primarily handled face-to-face and, as a result, were less common in the flexible work environment. Communications to inform and to coordinate were more often handled using information technologies in the new environment than they had been in the past. Virtually no social communication or non-administrative/logistic work-related communication took place using electronic mail.

- In the flexible work environment, the close-knit family atmosphere which had characterized the Digital Newmarket office evolved into a disjointed extended family. Flexible working was not the cause of this change. The series of reorganizations and layoffs driven by poor financial performance over the past several years was the major change factor. Mobile working just exacerbated the problem with its fewer and less predictable opportunities for face-to-face contact in the office.

Coping Mechanisms

- The telecenter support staff, as the only permanent staff, became the focal point of coordination and socialization activities. In many ways their role was evolving, informally, to that of a concierge.

- Several employees spent more of their working and social time with other work-related contacts they met in the customer's or Digital selling partner's offices.

- Coping strategies also included turning to the local community (i.e., going to the local pub in the evening to get out of the house), and the development of new hobbies and recreational activities involving community groups and resources.

Job-Related Differences

- Although definite patterns were difficult to discern across job types, service employees and systems integration consultants who had busy work schedules at client sites seemed least concerned about the social changes in the workscape.

- Sales peoples' reactions were mixed. Some were relatively unconcerned while others had a difficult time adjusting to both the social changes and the inconvenience in obtaining the technical support for mobile work.

- The technical consultants who had worked near each other in the office prior to the program were having a difficult time adjusting.

Family and Gender-Related Differences

Although the sample did not include enough single or female mobile workers to draw firm conclusions, it appeared that:

- Those with families at home greatly missed the social aspects of the conventional office.
- The two female mobile workers included in the sample, although aware of the social changes, were less concerned and affected by them than the rest of the (male) interviewees.

Conclusion

- Staff missed the informal contact and communication of a conventional office.
- For most staff, technology had not yet become a viable substitute, or even complement, to a reduction in face-to-face contact.
- Formal and informal policies and practices to encourage social connectivity were only minimally effective.
- The role of support staff changed and gained importance as they became the informal social directors of the organization.
- A study by another independent contractor suggested that performance, in terms of customer response, improved over time. Employees also reported using their time more effectively, including increased time spent at customer sites, one of the goals of flexible work program.

Overall, the picture that emerges is of a company--and its employees--in transition. Implementation of a flexible work program has been difficult, and a year after it began, the adaptation process is still very actively occurring. The picture underscores, as have several other studies of mobile workers, the importance and value employees place on formal and informal social connectivity to the work group. However, the data from this and other studies suggest that performance in certain areas improves. The long-term success of mobile work programs depends on the critical balance of these two sides of the workplace equation.

Table of Contents

Introduction ***1***

Emerging New Workplace Strategies 1

Research Focus 2

Literature Review ***5***

Functions Served by the Social Environment within Organizations 5

Social Functions in the Flexible Workplace 8

Summary and Research Goals 17

The Research Site ***19***

Digital Equipment Corporation 19

United Kingdom 20

Newmarket 21

Components of the Strategy 25

Important Dates 33

Study Focus 34

Methods ***35***

Sample Size and Selection 35

Data Collection 35

Findings ***37***

What was the effect on face-to-face interactions? 37

How was organizational learning and sharing conducted? 39

What happened to the informal office community? 47

What was the effect on employees' feelings of organizational connectivity and commitment? 52

How did employees cope with the reduction in social contact? 53

Are there differences in employees' reactions based upon differences in demographics or job function? 57

Summary of Key Findings.....61

***Discussion*.....63**

Communication.....63

Overall Assessments.....66

Conclusion.....67

***References*.....69**

List of Tables

Table 1: Jobs, Functions and Number of Employees of Each Type at Newmarket 24

List of Figures

Figure 1: Flexible work program objectives at Newmarket.....3

Figure 2: Multidimensional framework for relating individual expectations to environmental change.....10

Figure 3: Digital's net income by fiscal year in millions of dollars.....19

Figure 4: Settings, technology and work process in Digital Newmarket's flexible work strategy.....25

Figure 5: Range of flexible work settings.....26

Figure 6: Mezzanine level of telecenter converted to office space.....28

Figure 7: Ground floor of telecenter including "plug and play" center.....30

Figure 8: Dates of major events in the development of the flexible work program and the IWSP site visit.....34

Figure 9: Coworkers were together less often but more of that time was spent socializing.....38

Figure 10: Places used for socializing greatly increased.....40

Figure 11: Primary location of work-related meetings.....41

Figure 12: Primary locations of informal socializing.....42

Figure 13: How strategies used for various types of communication changed after implementation of the flexible work program.....44

Figure 14: The close-knit office became increasingly disjointed.....48

Figure 15: The entrance opened directly to the support staff area.....54

Figure 16: Potential evolution of business and personal communication.....64

List of Photos

Photo 1: Previous Office Exterior 21

Photo 2: Exterior of Telecenter 29

Photo 3: Telecenter is Housed within a Warehouse and Distribution Center 29

Photo 4: "Touchdown" Desks 29

Photo 5: Support Staff Area 29

Photo 6: "Plug and Play" Center 30

Photo 7: Hotel Exterior 31

Photo 8: Hotel Meeting 31

Photo 9: Supermarket Cafeteria Meeting 32

Photo 10: Partner Office Exterior 32

Photo 11: Digital Telecenter Space within Partner Office 33

Photo 12: Digital Library within Partner Office 33

Introduction

Emerging New Workplace Strategies

Common themes of 1990s' organizations are cost control and global competitive advantage. Organizations are trying to achieve greater productivity and better product quality (Handy, 1990; Morton, 1991). Managers are also concerned with enhancing flexibility in their businesses to better serve their customers' needs (Hammer & Champy, 1993). They are encouraging better coordination, collaboration, and communication among employees and customers (Morton, 1991).

Organizational goals and ways they are being addressed include:

Reduce Cost

- Reduce number of employees
- Reduce real estate

Enhance Quality

- Quality improvement programs
- Flatter hierarchies
- Business reengineering
- Increased training

Enhance Flexibility

- More flexible schedules
- Variety of places to work

Enhance Communication

- Group workspaces
- Opportunity for more face-time with customers
- Use of information technologies/groupware

At the same time, the availability, range of uses, and reduction in costs of information technologies have increased their attraction (Forester, 1987). It is now possible to communicate seamlessly with the customer or the office from five or five thousand miles away (Morton, 1991).

Advances in Information Technology

- Several mass merchandisers, such as Wal-Mart and K Mart, are using teleconferencing to allow headquarters-based merchandisers to provide store managers in the field with guidance and advice (Hammer & Champy, 1993, p. 91).
- Retailers find videoconferencing especially useful for displaying new merchandise to buyers and managers (Forester, 1987, p. 125).
- Live boards allow individuals in far off places to jointly see and edit documents as if they were in the same room. Denny McElroy, president of Carousel Mediaworks in Honeoye, New York, uses a program called Timbuktu, which allows him to phone an employee and electronically look over the employee's shoulder to see what is on the computer screen (Alexander, 1990).

Organizations are experimenting with new workplace strategies which exploit the new information technologies, to meet their goals of reducing overhead costs while better serving customers needs (Becker & Steele, 1995). These strategies include as workplaces nonterritorial offices, the home, and telework centers for example (Becker, Quinn, Rappoport & Sims, 1993).

Fueling organizations' interest in these strategies are the benefits reported, including:

- productivity gains from ten to 100% as a result of implementing some form of telecommuting (Alvi & McIntyre, 1993; Gordon, 1988; Manning, 1985);

- enhanced ability to attract and retain qualified workers (Alvi & McIntyre, 1993; Coates, 1991; Gordon, 1988; Huws et al., 1990; Korte, 1988; Olson, 1985) as well as to recruit qualified disabled workers, homemakers, and childcare providers (Gordon, 1988; Huws et al., 1990); and

- reduced employee turnover by retaining valuable employees who might otherwise leave (Becker et al., 1993; Wilkes, Frolick & Urwiler, 1993; Gordon, 1988; Korte, 1988).

Research Focus

> Most of the fears expressed about telework and the promises accompanying it either raise or are raised by problems of integration: group relations, relations with coworkers, relations with the hierarchy, adaptation to work, revitalization of the fabric of the local economy, etc. ...telework could directly or indirectly call into question the cohesion and coherence or the organization as well as the socialization of the individual in his working and non-working life (Craipeau & Marot, 1984, p. 112).

Researchers are studying the implications of these new strategies on organizations and program participants. When employees are no longer collocated, as in a homeworking or teleworking program, their interactions are affected. Methods of communicating, collaborating, and coordinating with others must be reinvented.

Remote workers frequently cite social isolation as a drawback of working out of the office (Becker, Quinn & Callentine, 1995; DuBrin, 1991; Huws et al., 1990; Salomon & Salomon, 1984). The organization must be concerned with supporting the remote worker's needs for social interaction, with maintaining connectivity with these workers and with the effect of remote working affects on organizational culture.

The purpose of this study was to examine the social implications (both work-related and personal) of a workplace strategy in which employees who previously worked together in a main office became virtual office workers.

Purpose

A Digital Equipment Corporation site in the United Kingdom served as the setting for this study. At this location, the company introduced a number of innovations as part of a strategy to meet its basic business objectives. Although cost reduction was the primary objective, multiple objectives were incorporated to support employees in better serving customers' needs.

Reduce Costs *by* Cutting Real Estate

+

Enhance Quality/Cutomer Focus *by* Flattenning Hierarchies

+

Enhance Flexibility *by*

- Providing Variety of Places Supporting Different Types of Work
- Allowing Flexibility to Work at Times that Make the Most Sense

+

Enhance Communication *by*

- Providing Information Technology Tools
- Support Group Work

=

Digital Newmarket Flexible Work Program

Figure 1: Flexible work program objectives at Newmarket.

Thus, Digital's flexible work program in Newmarket included the following primary components:

- mobile workers,
- multiple settings,
- new partnerships, and
- use of new information technologies.

Over 100 employees became mobile or "flexible" workers in April 1994 when the company chose not to renew its lease on an office building in Newmarket, a small town north of London. This decision led to the development of a range of settings, information technologies and work processes which together represent an integrated workplace strategy.

For this report, mobile working refers to the way employees work in Digital Equipment Corporation's Newmarket flexible work program. Thus, mobile working results from a deliberate integrated workplace strategy in which employees were equipped with the technological tools and organizational support to work at any location day or night.

BEST COPY AVAILABLE

In studying Digital's flexible workplace strategy, we focused on:

- how employees' ability to interact for learning, sharing and socializing (both personal and work-related) was affected by remote working;
- how mobile workers were affected by the changes in their ability to interact; and
- how various aspects of the workplace, such as its culture and community, were changed.

We began by reviewing the literature related to the way organizational members interact and the functions that this interaction serves.

Literature Review

Functions Served by the Social Environment within Organizations

Communities of Practice/Informal Networks

Brown and Duguid (1991) argue that the way people actually work differs fundamentally from the ways organizations describe that work in manuals, training programs, organizational charts, and job descriptions. The authors state that "conventional descriptions of jobs mask not only the ways people work, but also significant learning and innovation generated in the informal communities of practice in which they work." It is from peers in these informal communities that employees learn how to navigate the corporate bureaucracy. They learn who to contact to get the most accurate technical information, what the undocumented "tricks" are to making a program work, how to best contact different types of clients, how to respond to certain kinds of queries.

Informal communities occur despite the formal organization. Regardless of how employees are arranged or rearranged on the organizational chart, employees form informal networks of relationships which cross functions and divisions.

- Krackhardt and Hanson (1993) call the formal organization the skeleton of the company while the informal can be thought of as the central nervous system, "driving the collective thought processes, actions, and reactions of its business units."

> Designed to facilitate standard nodes of production, the formal organization is set up to handle easily anticipated problems. But when unexpected problems arise, the informal organization kicks in. Its complex webs of social ties form every time colleagues communicate and solidify over time into surprisingly stable networks. Highly adaptive, informal networks move diagonally and elliptically, skipping entire functions to get work done (Krackhardt and Hanson, 1993, p. 104).

However, informal networks can sabotage organizations' best laid plans by blocking communication and opposing change (Krackhardt & Hanson, 1993). Corporations must understand that these informal communities exist and realize the importance of their role, particularly in times of crisis or change.

Communication

The importance of good communication to organizational success cannot be understated. According to Allen (1977), there are three primary types of workplace communication:

1. communication to coordinate the work;

2. communication to inform individuals of new developments in their field of specialization; and

3. communication to stimulate creativity.

In the traditional office setting, exposure is a main predictor of communication. Office distance is related to exposure such that people with offices that are closer together communicate more than those who are farther apart (Zahn, 1991). Thus, communication can be encouraged by arrangement of employees throughout the office. For example, coordination communications can be enhanced by grouping members of the same project together, while grouping individuals by specialty can enhance their ability to keep up with the latest developments in their field. Finally, because communication to stimulate creativity is less predictable and more informal than the other methods of communication, it can be supported by encouraging the use of common spaces or traffic patterns that cause people to encounter one another.

According to Sundstrom, De Meuse & Futrell (1990), communication and cohesion across work groups may depend on the extent to which informal, face-to-face interaction is fostered by proximity of workstations and gathering places. Thus, communication can be encouraged by collocating groups of employees who work together or who are perform a similar function and are likely to learn from one another (Tjosvold, 1991).

Although communication does occur in planned meetings, recent findings from a sample of research and development firms confirms the importance of informal communications (Kraut, Fish, Root, & Chalfonte, 1990).

Among the Kraut et al. (1990) findings:

- Informal communication tended to be frequent, accounting for over 85% of the interactions in the sample.

- About 50% were completely unplanned and these unplanned conversations tended to be shorter than others.

- As the opportunity for informal communication with colleagues increased (based on physical proximity), so did one's familiarity with and liking for them and their work.

- Many smaller decisions and much of the coordination during project execution were completed in briefer and more spontaneous encounters. Unintended meetings were as valuable as scheduled ones for accomplishing tasks; they occurred four times as frequently, yet on a per meeting basis took only one third as much time to accomplish.

- All types of conversations provided some opportunity to enjoy the company of coworkers, to learn more about them, and build bonds with them. However, scheduled meetings fulfilled these needs inefficiently (occurred less frequently and took more time) (Kraut et al., 1990).

Organizational Learning

In addition to the specific communication functions first proposed by Allen (1977), the informal social organization supports a broader form of learning. Perhaps even more important than learning about the latest developments in one's field is that kind of learning which teaches individuals their jobs and how to perform them within the confines of their organization.

Learning, according to Lave and Wenger's (1990) concept of legitimate peripheral participation, involves becoming an "insider". This approach suggests that it is not the abstract knowledge of the work that is needed for learning but participation in the practices and communities in which that knowledge takes place. By becoming an operating member of the work environment, employees learn about their jobs through the various informal networks or communities of practice within the organization: who to go to for advice on how to solve problems and other technical questions; who they can count on to support them in a critical situation; and which employees to approach for questions on daily operational issues.

Immersion into the informal office environment is important to new employees not only in learning about the environment but also in becoming socialized to it. To acquire information and learn about their new setting, new employees rely on sources within the organizational context. For example, in one survey (Louis, Posner & Powell, 1983), respondents reported that their three most important socialization aids were interaction with:

- peers (most important in helping newcomers become effective employees),
- supervisors (helpful in learning the ropes and becoming effective organizational members), and
- senior coworkers.

The authors conclude that "daily interactions with peer while working was the most important factor in helping newcomers feel effective...and was significantly correlated with job satisfaction, commitment and tenure intention" and "the supervisor's involvement with newcomers is seen as affecting their subsequent job satisfaction, commitment and tenure intention" (Louis et al., 1983, pp. 863-864).

More recently, Ostroff & Kozlowski (1992) report that:

- newcomers rely mainly on observation of others, followed by communication with supervisors and coworkers to acquire information;
- early on, they focus primarily on the task and role-related aspects of their jobs and observation and experimentation are the most useful sources for obtaining this knowledge; and
- acquisition of information from supervisors and obtaining task knowledge is related to positive changes in social outcomes.

Social Functions in the Flexible Workplace

This discussion of communication, informal networks or communities of practice, and organizational and task-related learning has assumed that employees are working together in the same physical space. Employees who are working together have opportunities for communication exchange whenever they see each other. These chance encounters lead to discussions which lay the groundwork for development of informal communities vitally important to organizational success. It is not clear what happens to the communities when employees begin flexible working and no longer come into the same office each day so the opportunity for these chance encounters is reduced or eliminated.

Along with work-related contact, the opportunity to socialize on both work-related and personal levels with coworkers may be one of the most rewarding aspects of their work. One's assessment of the social work environment is related to his/her overall job satisfaction (Repetti & Cosmas, 1991). The extent to which mobile workers are able to form and maintain social connections with coworkers whom they may not see every day is another important issue.

Contact with coworkers and managers is also important for developing and maintaining employees' sense of organizational belonging and commitment. Employee perceptions regarding the top management-employee communication relationship, the quality of top management's communication, and superior-subordinate communication have been found to be strongly related to

organizational commitment (Allen, 1992). Is a sufficient degree of contact possible when employees are working in a mobile manner?

This review of research on informal networks and communication has highlighted several functions served by social interaction within organizations. The extent to which the flexible work environment supports these functions form the questions that the rest of this review will address.

- How might the informal organization react to and be affected by the change to mobile working?
- How might informal organizational sharing and learning occur in a mobile work environment?
- How can newcomers become integrated in a mobile work environment?
- How might employees be affected by the change in social relations brought on by a mobile work environment?
- What might the effect of mobile working be on employees' feelings of organizational connectedness and commitment?
- Might there be differences with respect to adjustment to the reduced social contact provided by the mobile working environment by demographic variables or job function?

How might the informal organization react to and be affected by the change to mobile working?

One way of thinking about how the informal organization might react to the change to flexible working comes from the use of a model Becker (1981) adapted from Rapoport (1970). Activities or functions can be broken down into four components:

- the activity proper;
- a specific way of doing it;
- additional, adjacent, or associated activities that become part of an activity system; and
- symbolic aspects of the activity.

According to the model, managers and users focus on different components of the activity which can be problematic when managers attempt to implement change.

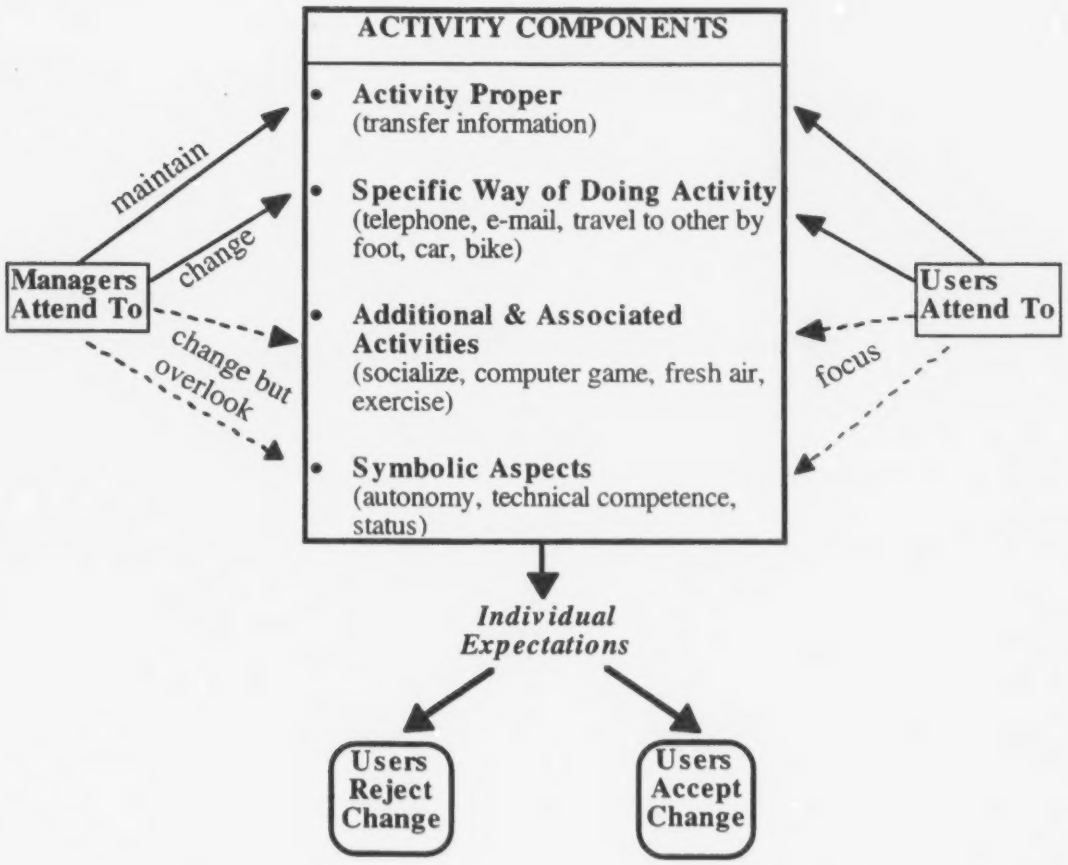


Figure 2: Multidimensional framework for relating individual expectations to environmental change.

When making the change to flexible working, managers may think that they are simply changing the location where social interactions occur. What the managers do not consider are the additional and associated activities that have been affected by the change, such as the break that such interactions provide in the day, the chance to bounce ideas off another, or the ability to seek out a coworker to ask a question or relieve steam. In addition, there are symbolic aspects that are performed by these interactions, including the ability to establish expertise, show status, and develop trust.

By overlooking certain components of the activity, managers can cause a much greater disruption to the employees' ability to work than they ever thought possible. Again looking at the case of moving to flexible working, if employees lose the opportunity to engage in regular social interactions with their coworkers, the entire informal organization, its networks and communities may be disrupted, resulting in grave effects on the organization.

How might informal organizational sharing and learning occur in a mobile work environment?

Particularly in high technology corporations of the 90s, the need to be on top of the ever-changing developments in the field, the dynamics of the market, and the desires of the customer become both increasingly difficult and increasingly important (Hammer & Champy, 1993). The ability to sit near coworkers and interact with them throughout the day provides an ideal forum for sharing new developments and for providing learning opportunities to new employees (Parker, 1994). Informal learning and sharing might be undermined unless organizations can find ways to connect their employees for these types of interactions. Organizations can try to bring employees together in hopes that coming together for occasional meetings can support this function. Alternatively, or in addition, organizations are turning to electronic communication to serve this purpose.

- Recent research provides some reason to believe that employees not working together in the same space and communicating primarily electronically (e-mail, telephones, voice mail, fax machines, etc.) are able to maintain regular contact with their coworkers for both work-related and personal exchanges (Becker, Tennessen & Young, 1995).

    - This research found that employees of a high technology firm who were working separately and communicating electronically were able to come together when necessary and were comfortable with the use of these electronic technologies as a forum for asking questions and exchanging information.

    - They felt, in fact, that using electronic technologies such as e-mail enabled them to maintain better contact with more coworkers than in the past.

How can newcomers become integrated in a mobile work environment?

As reported by Ostroff & Kozlowski (1992), newcomers learn by observing, experimenting, and acquiring information from supervisors and coworkers. Obtaining this task knowledge is associated with positive social outcomes. Removal of the office leaves new employees with little opportunity to sit in the midst of the activity and watch, ask questions, and learn from their coworkers. In addition, how does one get to know his/her coworkers well enough to develop

relationships, learn who one likes, who one should go to with technical questions, and who to trust if he/she does not even know who these coworkers are?

Gordon and Kelly (1986) suggest that certain individuals are not good choices for teleworking, "A person with more time on the job will do better than someone who's relatively new in the job and is still learning the basics" (p. 67).

It may be that individuals can get to know one another using electronic as opposed to purely face-to-face communication.

- For example, Becker, Tennessen et al. (1995), found that employees in one organization had little trouble meeting others using electronic communication.

- In fact, employees could get to know others with similar interests by joining various work and social-related interest groups which were set up in e-mail. Through these groups, employees reported being successful in meeting people, developing relationships, and engaging in formal and informal learning (Becker, Tennessen et al., 1995).

How might employees be affected by the change in social relations brought on by a mobile work environment?

Numerous researchers have found that people who have participated in telework or mobile work programs felt isolated, both professionally and socially.

- Huws et al. (1990) state that the higher the proportion of their working time teleworkers spend at home, the more dissatisfied they are with their contacts with others in similar work. "More than half of the teleworkers spending nearly all their working time at home mentioned the lack of social contacts as a disadvantage of telework." Other research shows that if people start to do teleworking more than 50 to 60% of the time, they no longer feel part of the organization (de Jonge, 1992).

- The majority of employees in a mobility program at IBM who were able to work in a variety of locations outside their former office rated the lack of social and professional interaction as the aspect they liked least about the program (Becker, Quinn et al., 1995). Over three-quarters of

the employees rated their ability to socialize with their coworkers as somewhat or much worse since the program began.

- Gordon and Kelly (1986) believe that "If remote workers are isolated or even feel isolated, their performance will suffer" (p. 47).

The news is not all bad for flexible workers. Perhaps some of the loss in social interactions can be made up for using electronic communication.

- Again in reference to recent research by Becker, Tennessen et al. (1995), employees communicating electronically were able to maintain a high degree of work and personal-related contacts with their coworkers. However, the extent to which those findings were unique to that organization or the particular culture to which it belonged is not known.

However, electronic communication may not be a complete substitute for face-to-face communication for teleworkers.

- Upon a review of the literature, Perrolle (1991) suggests that computer-mediated communication reduces the social solidarity in existing social groups.

- When communicating exclusively using information technologies, such as in a *full-time* teleworking environment, Martino and Wirth (1990) suggest that workers may become isolated, have elevated levels of stress, and reduced morale.

What might the effect of mobile working be on employees' feelings of organizational connectedness and commitment?

- Research on teleworking suggests that without appropriate procedures that require teleworkers to come into the office periodically and to participate in employee focus groups, for example, attachment to the corporate culture will be diminished (Wilkes et al., 1993).

- In addressing changing work patterns, Kinsman (1987) suggests that, "Organizations will have to accept that as far as belonging is concerned there will be a lessening of one-company loyalty" (p. 133).

While working in a mobile or remote manner may reduce opportunities for face-to-face contact with coworkers, there is some evidence that electronic communication can provide a "window on the corporation".

- Sproull and Kiesler (1991), based on their research on a Fortune 500 firm, state that receiving e-mail:

> can affect employees' attitudes toward their organization by increasing their informational and emotional connections to other employees. This can be particularly true for peripheral employees who participate in large electronic distribution lists, bulletin boards, or conferences (p. 81).

- Another study found that peripheral people who communicated electronically not only experienced significantly more involvement in the work of the group and got more satisfaction with its outcomes than those in a standard task force, but also felt that they formed significantly more lasting social ties with others in the organization (Bikson & Eveland, 1988).

- In another study it was found that use of electronic mail increased commitment to one's employer among those who otherwise might feel somewhat peripheral in an organization (Huff, Sproull & Kiesler, 1989). Additionally, in relation to e-mail, the amount of electronic mail a person sent best predicted commitment.

Might there be differences with respect to adjustment to the reduced social contact provided by the mobile work environment by demographic variables or job function?

Gender differences

There is some indication that women, and especially women with young children, have a harder time juggling both work and home roles and responsibilities than men.

- Several studies have indicated that females experience a higher degree of conflict between their home and work roles than males (Greenglass, Pantony & Burke, 1988; Gurstein, 1991; Izraeli, 1988; Pleck & Staines, 1985; Voydanoff & Kelly, 1984).

- Crouter (1984) discovered that mothers of children 12 years and under (but not fathers) reported greater degrees of negative spillover from family to work, suggesting that combining

work roles with those of parenting and home-making results in incompatible and impossible demands.

Given the opportunity to work from home, is this role conflict reduced?

- Ahrentzen (1990) found that while 36% of homeworkers reported increased role conflict since working at home, about the same number (37%) reported that role conflict decreased. Subjects reported high role conflict prior to working at home as the result of lengthy commute and rigid time schedules. Reducing the commute and allowing control over the work schedule resulted in less role conflict.

- In another study women working at home were found to be more satisfied with their jobs than were women working in an office (Gerson & Kraut, 1988). They also experienced less role conflict and overload. The difference remained even after controlling for demographic variables, the hours worked, and household income.

Thus, the opportunity to work from home appears to allow many women to better manage their sometimes conflicting work and home roles.

Are there differences between the sexes in satisfaction with home-working?

- Based on their review of the research, Huws et al. (1990) contend that the advantages and disadvantages of working from home are generally quite different for men than for women.

> When work is carried out in the home, male teleworkers will generally be provided with a separate room to work in and may be shielded by their spouses from distractions by children or stray callers. In contrast, women are likely to work in a communal area, such as a kitchen, playroom or living room, and to be simultaneously responsible for keeping an eye on young children or other dependents. They are also responsible for the general running of the household... (Huws et al., 1990, p. 56).

- A Diebold Group (1981) survey found that 56% of teleworkers surveyed, mentioned social isolation as a disadvantage. However, this number rose to 70% among the women in the survey. In discussing these findings, Huws et al. (1990) suggest that women who are homeworkers are more likely to be carrying out routine work with less intrinsic job satisfaction and involving less social interaction than men.

These findings suggest that although women are better able to manage home and work roles when working from home as opposed to the office, men may be more satisfied than women in both

instances. The opportunity to work not just from home but from home as just one of several workplace settings that are part of an integrated workplace system may reduce the sense of social isolation. It may also provide women with the role stress reducing benefits of working from home. This leads to the question of whether women are less satisfied than men when they are doing the same kind of work and home-working is just one part of a range of possible work settings.

Recent research evaluated employees' reactions to a mobile work program (Becker, Quinn et al., 1995). Overall satisfaction with the mobility program, with work effectiveness and a variety of other measures were compared across genders and family situations.

- Female mobile employees were more satisfied with the mobility program, had higher levels of job satisfaction, had more positive spillover (the influence between work and family and vice versa), and less role conflict than male mobile employees (Becker, Quinn et al., 1995).

- There were no differences, however, in level of satisfaction with the program, in amount of spillover, or in levels of role conflict by whether employees had children (Becker, Quinn et al., 1995).

These findings do not paint a clear picture of the differences between males and females with respect to their response to mobile working. However, it may be that females, who felt more socially isolated at home than males in one study, are able to satisfy their needs for social contact through mobile working and, at the same time, are able to better manage their home and work roles. These factors may result in women being happier with a mobile working situation than men.

Differences by Family Status

- Huws et al. (1990) report on a study of teleworking in which all the younger (under 28 years) and single teleworkers dropped out of the program because of their need for the social interaction provided in the office environment (Pratt, 1983).

- No differences were discovered on levels of satisfaction/dissatisfaction with communication in the mobility program by marital or family status (Becker, Quinn et al., 1995).

Interestingly, the teleworking program in which the single people had dropped out was primarily home-based, while the mobility program in the research by Becker, Quinn et al., (1995) merely included the home as one of a range of possible work settings. Working entirely from home may

be too isolating for individuals without a social network at home to use as a substitute for the loss of social interaction they would get in an office.

Differences by Work Experience and Job Type

Individuals may be able to make up for their loss of social contact in the office as a result of flexible working by socializing electronically as opposed to relying entirely on face-to-face contact for socialization (Becker, Tennessen et al., 1995).

- In that study, there were no differences across demographic variables of age, gender, and number of years in the organization on use of electronic communication except that those with less than ten years of work experience were more likely to offer work-related feedback using electronic as opposed to face-to-face communication (Becker, Tennessen et al., 1995).

Numerous researchers have attempted to group job types by appropriateness for flexible work (Lange, Kubicek, Reese & Reese, 1982; Lohmar, 1984; Olson, 1981).

- Heilmann (1987) proposed a group of six categories as being appropriate:

    - word-processing and software documentation,
    - programming and systems analysis,
    - data entry,
    - sales and consultancy,
    - clerical work, and
    - management.

- In addition, Heilmann (1988), suggested that computer professionals tend to be of a personality type with low communication needs, and therefore, well-suited to telework.

Although many researchers propose that certain job types are better suited than others to telework, these assertions tend not to be based on research findings. There is much yet to be learned about individual reactions to mobile working and whether these are based upon demographic differences or some facet of the job, be it job or workforce tenure or type of work.

Summary and Research Goals

In summary, there is a growing body of research literature that addresses aspects of informal communication in alternative work settings, but there is much yet to be understood. For example,

it is not yet clear how employees cope with the loss of social interaction in a remote working environment and how their needs for social interaction can be supported.

The purpose of this research was to examine:

- how employees are affected by the social changes to their work environment,
- how they cope with the reduced amount of face-to-face contact, and
- how functions such as organizational learning are carried out.

The following questions guided this research of Digital Newmarket's workplace strategy.

1. What was the effect on face-to-face interactions?
2. What happened to the informal office community?
3. How did employees cope with the loss of social contact?
4. How was organizational learning and sharing conducted?
5. What was the effect on employees' feeling of organizational connectivity and commitment?
6. Were there differences in employees' reactions based upon differences in demographics or job function?

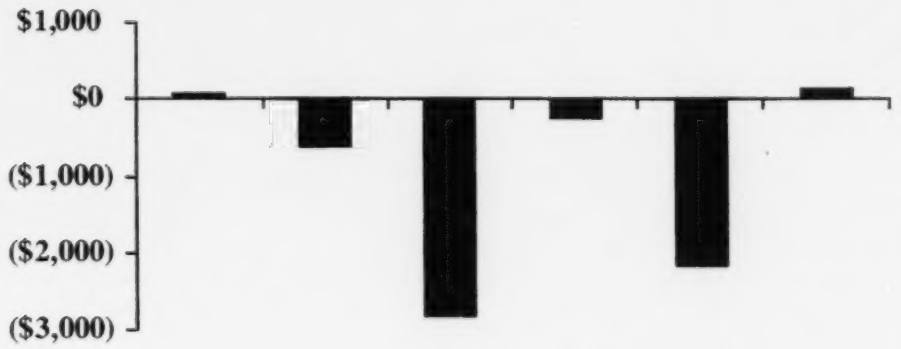
The Research Site

Digital Equipment Corporation

Digital Equipment Corporation is one of the world's largest suppliers of networked computer systems, software and services. In sales, Digital is the world's second largest computer manufacturer. Based in the United States, more than half of its revenues are generated outside the United States.

Digital has implemented a variety of innovative office strategies. The "Office of the Future," one of the first of these new strategies, was implemented in Helsinki, Finland in the 1980s. This nonterritorial office was developed to stimulate informal communication and teamwork. Since then, Digital has been developing new innovative workplace strategies in its offices in other countries, most notably Sweden and the United Kingdom.

Recently Digital has been struggling financially. Stock prices fell from just over $40 per share in August 1993 to a low of $19 in mid 1994 before climbing back up over $40 in April 1995 (M.I.T. Artificial Intelligence Laboratory, 1995). Sales have leveled off, with annual sales increasing less than one percent from 1990 ($13 billion) to 1994 ($13.5 billion) (OneSource Information Services Inc., 1994). Net income was negative for four years prior to 1995.



Note: Digital's fiscal years run from July 1st to June 30th.

Source: Digital Equipment Corporation and OneSource Information Services Inc., 1994.

Figure 3: Digital's net income by fiscal year in millions of dollars.

As a result, the company has been exploring ways to reduce costs and regain its competitive edge. There have been numerous reorganizations, downsizings and office building closings. These

struggles have given an added impetus to the implementation of innovative work practices at Digital offices. In the United Kingdom for example, as the company divests itself of real estate holdings, the use of flexible work practices has flourished.

United Kingdom

Digital in the United Kingdom has traditionally been a very social company. Each office has had a sports and social club. Employees contributed dues which paid for participation in company-organized events. Many staff participated. In general Digital employees were close to one another, with one's own office site serving as a sort of 'immediate family' and Digital sites in the rest of the U.K. as the "extended family."

The recent financial struggles at Digital have had a great impact on its United Kingdom sites. New offices have been acquired or built only to be closed down as a result of the most recent company reorganization. The reorganizations have resulted in employee layoffs and increased rates of turnover. Employees who remain are increasingly finding themselves managed by individuals located in sites remote from their own. One reason for this is that Digital has implemented flexible officing, enabling staff to work anywhere, anytime. Initially, a number of pilot schemes were put into operation. These included a sales training and a personnel area in DECpark in Reading, England. The big expansion in flexible work came in 1991 with the Crescent building in Basingstoke. The Crescent was built from the outset to employ flexible working principles and to achieve significant savings in occupancy costs.

The key element of flexible work programs was the provision of technology which enabled employees to remain connected to the office from any remote location. These included mobile telephones and laptop computers with dial-in access to the company server. Equipped with this technology, individuals could more easily work from home, their car, or any other Digital site.

These innovative flexible offices were initially designed and implemented by the members of a program called "The People for the 90s". This program started in 1988 to investigate how Digital could become more competitive in the 1990s through better integration of human resource strategies with business, technology, and real estate strategies. The use of flexible offices, remote working, and teleworking were identified as ways to bring business benefits and to more closely meet the employees' lifestyle needs. The People for the 90s program has now become Digital's Flexible Working Program, charged with implementing innovative Digital offices across the United Kingdom and providing flexible work consulting services to the outside community.

Some of the principles behind flexible work programs at Digital include:

- the ability to address low occupancy rates by shutting down under-utilized buildings (occupancy in a traditional Digital, U.K. office is less than 40%, representing over 20 million pounds/year of work space not being effectively utilized);
- different tasks are best done in different environments;
- a traditional office does not cope well with the wide variety of task needs;
- modern technology allows information and messages to be received easily away from a base office;
- work groups can, with guidance, develop much better working productivity by designing their own work processes rather than having them dictated from above; and
- those who can work effectively away from a base office should be encouraged to do so; those who by virtue of their work or domestic situation are office-bound should have more say in the office layout than those who visit only occasionally.

Source: Flexible Working Practices, Digital Equipment Corporation, 1995

Newmarket

Digital's flexible work program emphasizing remote working and the use of a telecenter was launched initially at Newmarket, a town located about 50 miles north of London and just east of Cambridge. Digital had leased a conventional three story office building there for several years. The building included 12,000 square feet of office space which housed over 100 employees. It was a traditional office where each employee had his/her own assigned workstation within an open floor plan. The office included sales, consulting and service staff who served customers throughout East Anglia. Survey results revealed that more than half the staff spent less than 40% of their time in the office, and only 16% spent more than 60% of their time there (Horack & Adler, 1994).

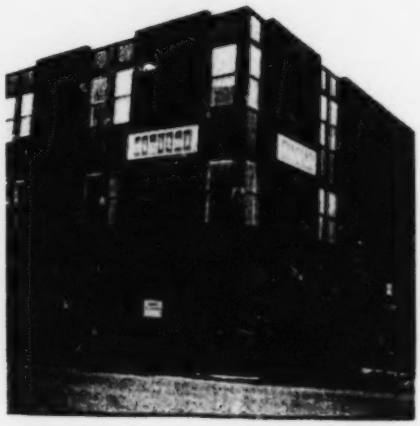


Photo 1: Previous Office Exterior

In September 1993, the Newmarket manager was advised by Digital property management that the lease was not going to be renewed on the Newmarket office building. The closure was one of a

number of such changes under a building rationalization initiative called Delta. The primary purpose was to reduce infrastructure costs, improving the competitiveness of Digital's overall cost base in the United Kingdom.

In an effort to retain the Newmarket employees, the site manager devised two options:

1. employees could transfer to the Welwyn office (located about 25 miles north of London), or

2. they could become part of a flexible work program with a local telecenter as the home base.

The telecenter was to be sited in a 1,200 square foot office suite attached to an existing Digital distribution facility in Newmarket. The distribution facility was composed primarily of a parts and equipment warehouse.

Although the employees were not involved in the decision to close the office, an effort was made to involve them in the decisions regarding what their future with Digital could be. Workshops were held with all employees. These revealed strong support for the development of a flexible work program with the Newmarket distribution facility as the central telecenter.

Expected benefits of the telecenter solution included being able to:

- maintain frontline operations as close to the customer base as possible;
- minimize disruption to individuals and the business;
- create a working environment that encourages flexibility and self-motivation;
- improve productivity by encouraging more time with customers and better time management;
- show a lead for others in Digital to follow, thereby enabling further potential cost savings in other locations; and
- create a showcase flexible working environment, that could be used as a demonstrable reference to the customers.

Source: Flexible Working Handbook, Digital Equipment Corporation, 1994

The Change Process

- A cross-functional project team was established, with representatives from each of the business groups in Newmarket. Led by the site manager, this team led the transition.

- Regular forums were held with all employees to inform them of the latest plans and developments related to the move to teleworking and to provide an opportunity to ask questions and voice concerns.

- Informal lunch clinics were held in which employees were invited to sit with management in an informal setting to discuss upcoming changes.

- Work groups developed protocols for handling flexible work program and new telecenter functions:

  1. Business Design Team. This group reexamined the fundamental issues of work performance, including business objectives, commitment to local customers, and the company's future strategy. This group tried to ensure that physical changes would not negatively impact business plans.

  2. Technical Team. This group was charged with examining the technological aspects of the program, what was needed to support work at home, on the road, and in the telecenter. One outcome was the development of the "Plug and Play" center, an area with high quality hardware and software used for simulating customer requirements.

  3. Telecenter Support Group. The secretarial and administrative staff (the only staff that would have permanent space in the telecenter) reviewed their jobs and defined what their new positions, roles and responsibilities would be in the telecenter to support the mobile workers.

- Consultations were held with each employee to discuss the most appropriate work option for every individual. One option was home-based work (for those currently spending less than 50% of the work week out of the office but had work of which at least 50% could be done from home). The other was mobile work (for those who were currently spending greater than 60% of the work week away from the Newmarket office). Mobile workers would be expected to primarily use a combination of home, Newmarket telecenter, nearby Digital offices, and other Digital or customer locations as places of work. The primary difference between the home-based and mobile work options was that the company provided the home-based workers with a yearly allowance to cover the incremental costs (i.e., heating, lighting, etc.) incurred by the employee using their home as a workplace. In practice, only one person was classified as home-based.

- An employee "mobile" guidebook was developed that discussed issues related to mobile work, including tips for working at home, as well as information on such issues as insurance and taxation.

- Extensive training sessions covered home office set up, how to work from home, time management, handling the telephone system and answering the home phone, information for business cards, and mailing letters. An independent study revealed that 62% attended the training and nearly all rated it as being "helpful" or "very helpful" (Horack & Adler, 1994). Even so, probably reflecting their anxiety about mobile working, only slightly more than half felt they received "enough information about the new arrangements" and felt "adequately prepared to work in the new environment" (Horack & Adler, 1994).

The Employees

Table 1: Jobs, Functions and Number of Employees of Each Type at Newmarket

		# Employees*
Sales personnel	Spend most of their time out of the office to: • Sell to corporate and other large accounts and work with Digital's sales partners who sell to smaller scale customers	30+
Consultants **Systems Integration Consultant Group -** **Technology Consultants -**	Spend large blocks of time at customer sites: • Work with customers to develop and install complex, specialized computer systems Spend most of their time in the office: • Develop new hardware/software	20+
Field service personnel	Spend most of their time at customer sites: • Respond to calls for hardware or software troubleshooting and support	30+
Administrative /secretarial staff	Work in the office: • Provide staff support, input billings and sales results, and distribute service calls	9

* The number of employees with the telecenter as their "home" office has constantly fluctuated since the flexible work program in Newmarket was announced. These are rough estimates only.

BEST COPY AVAILABLE

Only the administrative/secretarial support personnel were provided with permanent workstations in the telecenter. The remaining employees became mobile workers with access to unassigned workstations in the telecenter.

Components of the Strategy

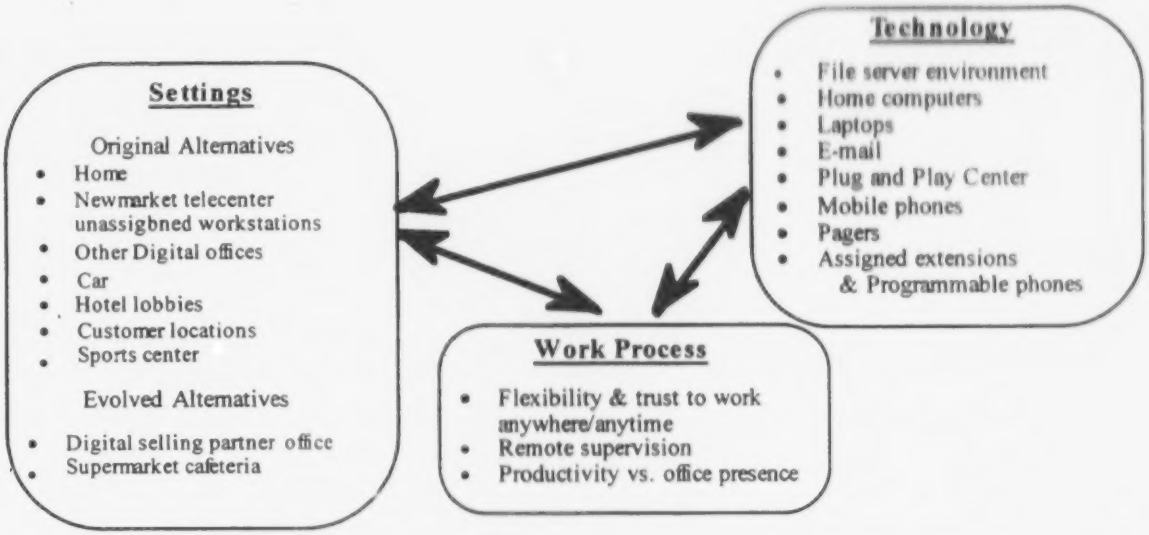


Figure 4: Settings, technology and work process in Digital Newmarket's flexible work strategy.

Work Process/Policies

Trust

Very few employees were managed by other Newmarket-based employees. Since remote supervision was becoming more common even before the flexible work program at Newmarket began, employees were already accustomed to managing themselves daily. Periodic meetings were held with one's business group (which typically included individuals from various parts of the country) and/or one's manager.

With the flexible work program, not only were employees not expected to come into the telecenter office on a daily basis, they could not do so as the office was too small. Each employee's work schedule was entirely his/her own. He/she was expected to know what tasks were needed and do them. Productivity was the measure of work accomplished as opposed to time spent in the office.

Management Approval for Socializing

During the forums, meetings and training sessions held prior to moving to the telecenter, arrangements with the local hotels and sports center were discussed with the employees (see "Other Settings"). They were told that they should hold meetings in these settings and to feel free to stay on after meetings to socialize with one another. Employees were encouraged to get together at pubs for lunch and the management jokingly stated that employees could also meet in the cafeteria in the supermarket down the road for work and socializing. (The mobile workers did end up using the cafeteria, see the *Findings*).

Other Social Exchange Forums

Other forums for social exchange included:

- 1) Employees were encouraged to call one another occasionally whether the call was work-related or not; and 2) when they did call a coworker for a job-related question, they were told that they should stay on the phone and socialize after resolving the question.

- A Digital Newmarket flexible working note file (bulletin board) was established on e-mail for employees to share concerns, problems, and issues as well as for general socialization purposes.

Settings and Technology

It was originally planned that a nearby Digital office (located in the town of Welwyn) would serve as the "core location" for the mobile workers, providing touchdown and meeting facilities. It was also to be the preferred location for customer meetings due to its

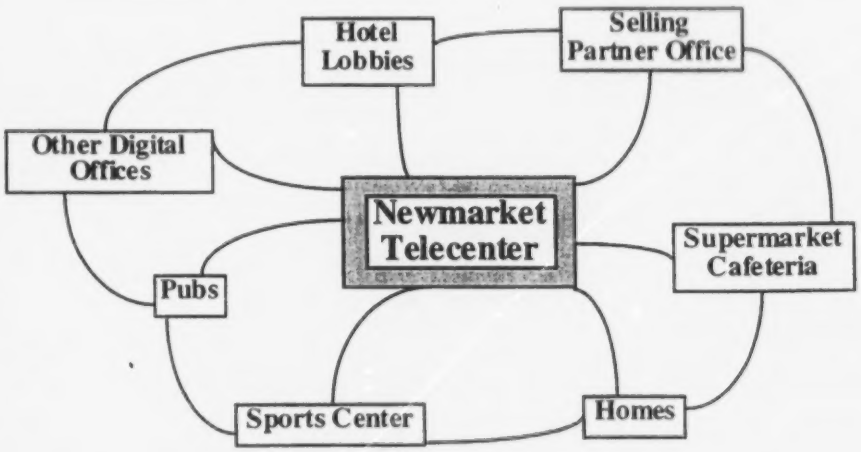


Figure 5: Range of flexible work settings.

demonstration and conference facilities. However, soon after beginning the flexible work program at Newmarket it was also decided that the Welwyn facility would be shut down. As a result, this setting became unavailable.

The Home

The company provided home office furniture when needed, including a desk, chair and filing cabinet. The following equipment was also provided for the home offices:

- computer (terminal, PC, notebook, or workstation depending upon individual needs) and printer; and
- a business telephone line and modem (9600 baud).

The company set up a VPN (Virtual Private Network) service for employees' home telephones. Home telephones were programmed with a network access code and a ten digit pin number. By activating a memory button on their telephone, outgoing business calls can be differentiated from personal calls and billed separately. The network also connects the user to the Digital telephone network, allowing one to dial Digital numbers using only a four-digit extension.

When working from home, employees were encouraged to:

- be proactive in maintaining contact with the office;
- schedule informal lunches and formal meetings with key colleagues;
- take the initiative to offer information and assistance to colleagues; and
- keep one's manager informed of progress and changes.

Employees were encouraged not to:

- leave teamwork to chance;
- work casually (i.e., on one's bed, sleep late, watch television or listen to the radio, allow family or neighbor interruptions, answer the phone unprofessionally, do housework);
- give working at home as a reason not to attend meetings or take on assignments; and
- forget to stop working.

Source: Flexible Working Handbook, Digital Equipment Corporation, 1994

Some of the established characteristics of the telecenter included:

- it is not a customer site and customers are not to be taken there;
- there are no personal desks (except for the support staff);
- the layout is designed to be multifunctional, with sales, service, and consulting staff sharing the same facilities; and
- there is no reception or switchboard and hence, no office telephone number. (This was located at the Welwyn office but this function was added at Newmarket when Welwyn closed).

Source: Flexible Working Handbook, Digital Equipment Corporation, 1994

Physical Layout

Very little remodeling was done to the warehouse and distribution center to incorporate the telecenter. A mezzanine level comprising one hallway and offices on one side was adapted to house the permanent and flexible staff. An open area and two hard-walled offices held the permanent support staff. Two other hard-walled offices were equipped with nonterritorial "touchdown" desks, available on a "first come, first served" basis.

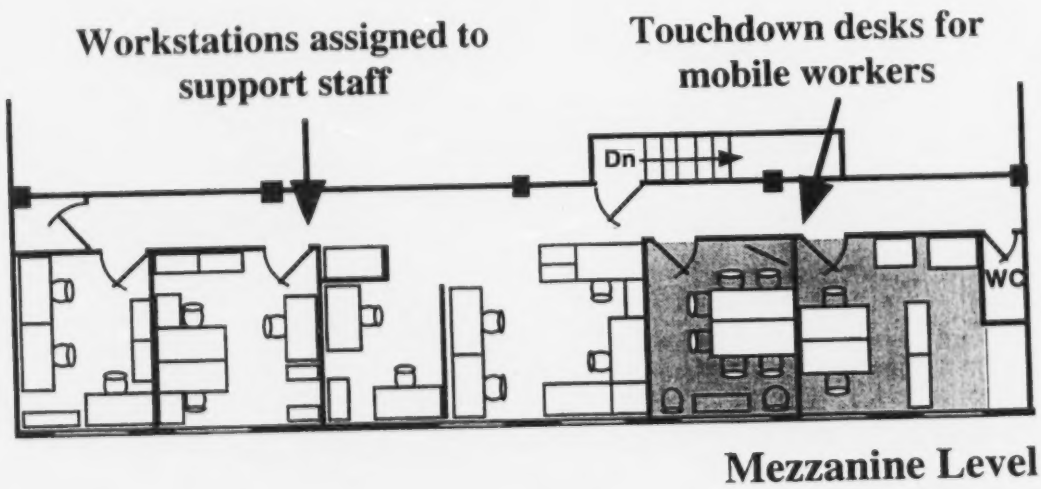


Figure 6: Mezzanine level of telecenter converted to office space.

Photo 2: Exterior of Telecenter

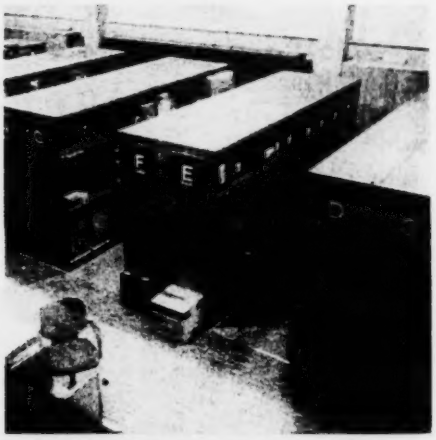


Photo 3: Telecenter is Housed within a Warehouse and Distribution Center

Photo 4: "Touchdown" Desks

Photo 5: Support Staff Area

The desks contained a mix of personal computers and terminals. The personal computers included Microsoft Office software and were networked, giving access to printers and remote servers. A few desks were empty, with connections for an employee to hook up a laptop computer. In all, the telecenter held nine such desks resulting in roughly a 10:1 ratio of employees to desks.

The touchdown desks provided for the mobile workers were deliberately arranged to encourage face-to-face interaction. This reflects the manager's concern for employees' need to socialize coupled with the understanding that all employees were equipped to work from home or anywhere else they chose for concentrative work.

The ground floor of the warehouse included a "plug and play" center. This center was established for the testing and evaluation of new products and analysis of customer configurations. Numerous computers and other high tech equipment were available on a "first come, first served" basis.

Photo 6: "Plug and Play" Center

Figure 7: Ground floor of telecenter including "plug and play" center.

Storage

No personal storage was available at the telecenter.

Telephone System

Employees retained their telephone extensions from the previous Newmarket office. These extensions were referred to as phantom numbers since they were not assigned to any particular telephone but instead could be programmed to ring at any telephone in the telecenter. When the mobile workers were not in the telecenter the number was set to ring to their secretary's line. In

practice the employees had trouble remembering to program and deprogram the telephones, resulting in their abandoning that practice and leaving the number attached to the secretary's line.

Messages that came in for the mobile workers when they were not present were sent to them using an electronic telephone messaging system. If the message was urgent, the secretary also called the worker on his/her mobile phone.

The telecenter also had the following technology available to the employees:

- three fax machines, one assigned for the primary use of each of three business groups: sales, service, and consulting;
- two main printers (a color printer and a laser printer), both connected on the local network; and
- two photocopiers.

Other Digital Offices

As had been the case for some time in Digital, when employees were on the road, they were encouraged to drop in at other Digital offices. Most were equipped with touchdown desks for this purpose while at others it was understood that employees could use any available desk.

Other Settings

Providing alternative sites for employees to meet and socialize was a particular concern. Because conference space was not included in the telecenter, and because space was so tight, employees could not carry on conversations without disturbing others working there. Arrangements were made to provide employees with locations to work alone or to gather for work and socialization:

- 1) Arrangements with local hotels and a sports center for employees to meet or work alone.

Photo 7: Hotel Exterior

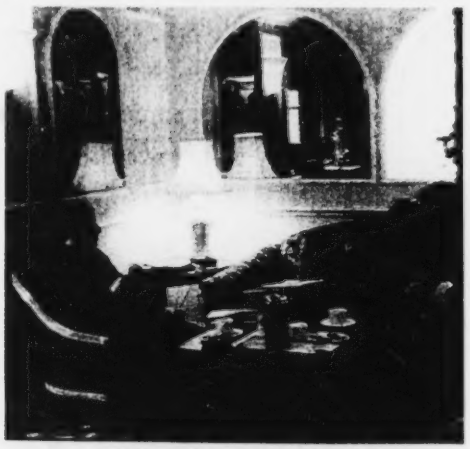


Photo 8: Hotel Meeting

- 2) Encouragement to hold meetings at pubs over lunch or at a nearby supermarket cafeteria at any time (usage was not originally expected at the cafeteria but evolved over time).

Photo 9: Supermarket Cafeteria Meeting

Additional Office Space

In January 1995, an agreement with one of Digital's selling partner companies resulted in a new arrangement for the Newmarket mobile workers.. The company had excess space in its Cambridge office and agreed to allow Digital to set up a small telecenter space within its office for a minimal fee.

This company and Digital had been working together for 15 years. For some time, the company had been providing a small number of Digital staff with desk space and facilities at its office on an informal basis. The strengthening of this business partnership along with Digital's transition to flexible working practices provided the catalyst for establishing the contractual arrangement.

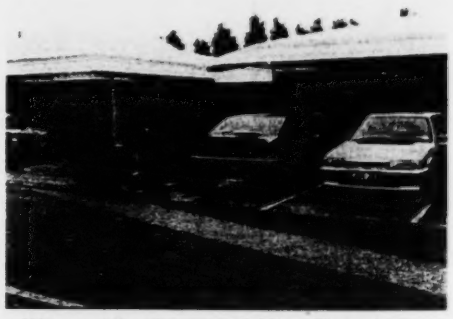


Photo 10: Partner Office Exterior

The space held eight touchdown desks and a Digital library. Telephones which accessed Digital's internal system were installed. Both personal computers and terminals which access the Newmarket telecenter via Kilostream link were located on various desks. Employees had access to conference rooms, a lunch room, and a fax and photocopy center.

Photo 11: Digital Telecenter Space within Partner Office

Photo 12: Digital Library within Partner Office

Other Technology to Support Mobile Work

In addition to the technology available in their homes and the telecenters, employees had several other types of tools available.

- Each employee could also request a laptop computer. All computers were linked to Digital's file server network.
- There was a computerized scheduling system in place. Mobile workers were supposed to enter their schedules into a networked software program so others could access this information.
- Digital provided and paid for business-related charges on mobile phones (as well as pagers for those who demonstrated a business need for them).

Important Dates

The telecenter was opened and the flexible work program began in April 1994. As a result of the nearby Digital office in Welwyn closing in December 1994, at least 30 more employees were added at Newmarket. These employees were in positions similar to those of the Newmarket employees, including sales, consultancy and service. With the addition of these people, the ratio of touchdown desks to employees changed to about 12:1.

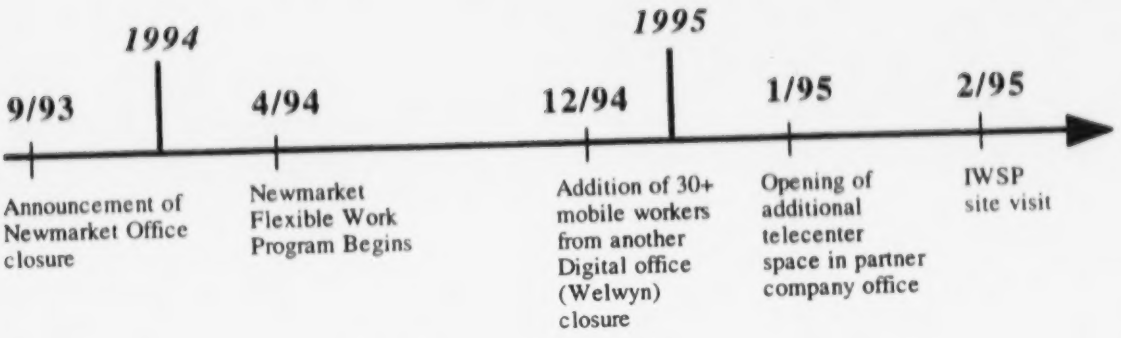


Figure 8: Dates of major events in the development of the flexible work program and the IWSP site visit.

Study Focus

The flexible work program developed at Newmarket represents an integrated workplace strategy, including the technological tools and the policies necessary to support the employees' ability to work from any location at any time. In addition, the management made a concerted effort to keep in mind and support, as much as possible, the employees' needs for social (both work-related and more personal) interaction in this new environment. Because the Newmarket site provided not only an example of a functioning integrated workplace strategy, but also emphasized the users' social needs in developing and maintaining the strategy, it provided an ideal situation for the study of the social impacts of a flexible or mobile work program.

Methods

Sample Size and Selection

Thirteen Digital Newmarket employees were interviewed. The sample included males and females, single and married individuals, and those with children and those without. In addition to the site manager, employees from sales, consultancy, and customer service were interviewed, including support staff who were not mobile workers.

Data Collection

Primary data sources included telephone and face-to-face interviews.

Focused Interviews

Telephone

Prior to visiting the site, detailed telephone interviews were conducted with the manager of the Newmarket office and with members of Digital's flexible working consulting group who assisted in developing the program. The interviews provided background information and an understanding of the components of the flexible work program. Based on these interviews, questions were developed for use as employee interview guides.

Face-to-Face

Face-to-face interviews lasting from 20 to 90 minutes in length were held in work settings available to employees, including the telecenter, the local supermarket cafeteria, a hotel lobby, a restaurant, and a home office. Questions focused on changes in employee workstyles and work patterns, things missed/not missed about the previous work environment, changes in social relationships, and adjustments in employees' personal lives as a result of the changes to their working lives.

Archival Data

Several types of company archival data were provided for review. These included:

- *Flexible Working Practices - Digital Equipment Corporation*;
- *The Flexible Working Handbook*;

- *The Managers' Guide for Employees Affected by Building Closure*;
- *The Digital Survey of Staff Attitudes, Preliminary, First Phase Results, and Second Phase Results* of an independent study of worker attitudes both prior to and following implementation of the program;
- the telecenter floor plans; and
- the contractual agreement for telecenter space in the selling partner office.

These documents added to our understanding of the workplace system as well as to employees' initial reactions to the change to mobile work.

Findings

A Note Regarding Interpretation of Findings

Before discussing the findings of this study, it must be reiterated that over the last couple of years in addition to the change to flexible working, Digital employees have been affected by considerable changes within the company. The employees felt that the entire culture of the company had been changing, largely as a result of a "constant state of change," resulting in a very high degree of employee turnover within the company. A service manager explained, "It's difficult to separate out [the causes for the change to the social atmosphere] with the fact that at the same time that we changed to the telecenter, Digital was also losing a lot of people." Most employees interviewed were distressed by this general state of affairs.

As the company continued to change its focus, employees were unsure of their job functions, who their supervisors and coworkers were, and whether their job would be there tomorrow. As a result of these trends, many employees interviewed felt that the company had lost much of the family feel it used to have. They felt that these changes, in addition to the trend toward flexible working, had resulted in more difficulty in staying touch with and less face-to-face contact with their Digital friends. As another flexible worker commented, "Even if we were still in a conventional environment, there would still be the feeling that this [culture] is not what it used to be."

The researchers made a concerted effort, whenever possible, to distinguish the thoughts, feelings and adaptations being voiced by the Digital employees that could be attributed to the change to flexible working changes as opposed to merely changes in the company.

1. What was the effect on face-to-face interactions?

A New Appreciation for Coworker Contact

One of the most potent findings from the Newmarket flexible working program was that of a raised level of appreciation for opportunities to see and interact with one's coworkers. Everyone agreed that interactions with coworkers were less frequent than in the past. No one felt that this was a positive change. As a single male technical consultant noted,

> The thing that I miss is the interaction with the people. I used to come in and we'd joke around at the coffee machine and see all the other people in the office. Now you have to plan a little more. In an office, you could walk down the hall and see someone and stop and chat a bit. Now in order to talk with someone, you have to organize a meeting.

Intensification

This increased appreciation of opportunities to socialize was manifested in more intense contacts when individuals did see each other. Although together less often, they spent a much greater percentage of their time together in work and nonwork-related socializing than they had in the past.

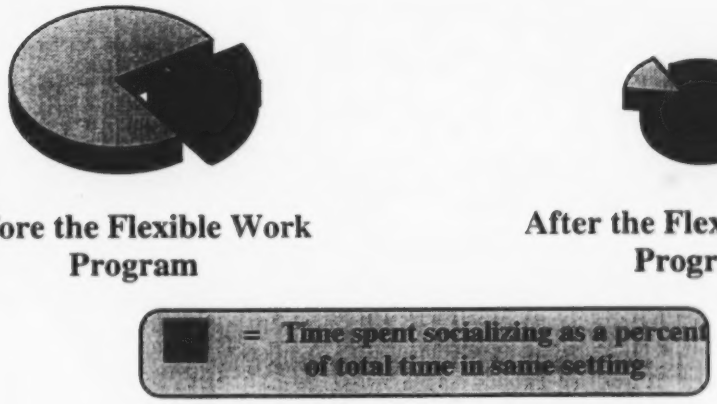

Before the Flexible Work Program
After the Flexible Work Program
= Time spent socializing as a percent of total time in same setting

Figure 9: Coworkers were together less often but more of that time was spent socializing.

- When employees encountered each other in the telecenter, they spent a greater percentage of time socializing than when they all worked together in the same office. They felt justified spending this time because they spent less total time in contact with coworkers. For some, these contacts were one reason for telecenter use. As the systems integration consulting group manager explained:

  > A good part of what brings me in to the telecenter is the desire to maintain contacts with my coworkers. And in this environment, we're more actively looking for social-type contact as well as work-type contact. So when you're here and see someone else, you're more likely to stop and talk and catch up with that person.

- When current Digital employees encountered former employees or other current employees who had transferred to a different facility, they socialized with them for a long time.

  > Now when I run into people I used to work with, we spend more time socializing than we would have in the past. We spend more time discussing non-work related things. - *Married male technical consultant*

Importance of Meetings

Meetings had also become more important.

> When we were at the old office it was difficult to get everyone in for a meeting, and when we did, there were always people arriving late. Since the flexible work program, people really take the meetings seriously. They arrive on time, they are more active and really contribute. - *Systems integration group manager*

> We all tend to get right down to business for meetings. Working this way really forces you to be better prepared for meetings and to better organize your schedule. - *Service manager*

> Discussions with coworkers are now more focused. When we get together we get right to the point. We work in groups better and faster. - *Systems integration consultant*

And many expressed the sentiment of the sales manager who was concerned that "We need more, not less meetings."

2. How was organizational learning and sharing conducted?

What is Socializing?

Social - of or characterized by friendly relations or companionship.

- Random House Webster's Dictionary, 1993

It became clear that there were many dimensions to socializing, all of which can be important in the work context. These dimensions varied substantially by formality and prior planning involved.

- There were the kind of discussions that occurred in work meetings which tended to be very job specific, i.e., solving a particular problem or developing a business plan.

- Other exchanges led to learning through the organization's informal communities of practice (Brown & Duguid, 1991; Lave & Wenger, 1990).

- Socializing also took the form of getting to know, trust, and become comfortable with one's project team members.

- Finally, socializing was as simple as "hanging out" with one or more people who were considered friends.

Where Mobile Workers Socialized

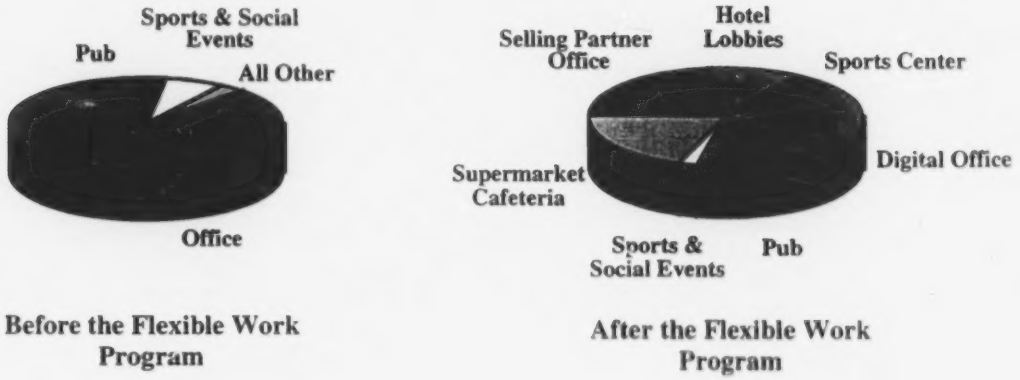


Figure 10: Places used for socializing greatly increased.

Prior to the flexible work program, all types of socializing occurred in a limited number of locations. The office was the primary location of more work-related exchanges. The pub, or sports and social events, were the settings for more informal or personal exchanges. The following sections will discuss where socializing took place after program implementation.

After implementation, the number of employee gathering places grew and a pattern developed in which certain places were used for different purposes. Although originally envisioned as a place to hold meetings and then to stay on for socialization, the sports center was rarely used. It was considered too far and out of the way to be convenient. Sports and social events became nearly non-existent.

Work-Related Meetings

The location of work-related meetings varied with the size of the group and meeting purpose. Generally smaller meetings occurred in a hotel lobby and larger meetings in a Digital or partner facility conference space. The Newmarket telecenter's plug and play center was used if very specialized equipment was necessary.

- The technology manager liked to meet in the hotel lobbies for one-to-one meetings. Being out of the office reduced disruptions, provided privacy from coworkers, and had the added benefit

of employees taking the meeting seriously. Because employees made a special trip to the hotel for the specific purpose of the meeting, they seemed more willing to thoroughly cover all issues.

- For unit meetings with the technology group, the manager used one of the hotels if space allowed, or the conference room in the partner company's facility.

- A member of a systems integration consulting group explained that he and a Newmarket coworker met with a third coworker in a Digital London office (the third employee's base) the first time the group met on a project. The London member met with them at the Newmarket telecenter for the next meeting since they needed equipment in the "plug and play" center. Subsequent meetings were held at a hotel or other establishment near one member's home.

Figure 11: Primary location of work-related meetings.

Informal Socializing

When employees ran into one another at the telecenter, they sometimes decided to use the opportunity to catch up with one another. This required driving to a pub, hotel lobby, or supermarket cafeteria. Although it was not convenient to have to drive to another location, they were willing to make the effort because they valued socializing with the people they used to see regularly in the office. Despite commonly making lunch trips to local pubs prior to mobile working, the value of these trips increased with mobile working. One sales manager referred to the pub as "the replacement for the Digital office" and found pubs to be such a good place for socializing with coworkers that he would have liked to have been able to set up and work there. "I think the pubs should be turned into televillages."

It was common for those employees who were in the telecenter around noon to head to the pub together for lunch. Although these lunches were often forums for work-related discussions, they were not formal meetings with a specific purpose. Hence, they provided a valuable opportunity for coworkers to socialize on many informal levels.

In many ways, pub lunches took on the role of the gatherings around the coffee machine that previously occurred in the traditional office environment. Some spontaneity was removed by having to plan to go together to the pub rather than just running into whomever was there. However, employees often went to lunch with other employees who happened to be in the telecenter rather than only with those in their working group or department. In this way, the pub provided the opportunity for organizational sharing across department lines. In addition, getting out of the telecenter provided the privacy and separation necessary to hold sensitive discussions that might not have been appropriate in the telecenter.

Although initially presented more as a joke than as a real option in the flexible work training sessions, employees started going to the cafeteria in the supermarket down the road to meet and socialize and sometimes to work individually while having a snack. While the pub tended to be the meeting place of choice around lunch time, the cafeteria was used any time. Because it was near the telecenter, it was often used for spur of the moment gatherings.

Cafeteria

Pubs

Figure 12: Primary locations of informal socializing.

Spending time with others purely out of friendship nearly disappeared with the advent of the flexible work program. The sports and social club used to provide a forum for getting together outside business hours but few organized activities occurred after mobile working began. What did survive was a small group of employees who lived in the same general area, going together to a pub on Friday nights.

Keeping up with Others - in the Telecenter

Employees' use of the telecenter influenced the extent to which they believed its environment assisted them in getting to know, share with, and keep up to date with others. Some used the telecenter fairly often and got to know a greater number of coworkers (though not as well as they knew those they worked near in the past). Others did not use the telecenter and not only lost touch with those they knew but also did not meet other employees.

- A service manager felt that because the telecenter was nonterritorial and individuals sat next to others from a completely different line of work, he was more likely to stop and ask the person next to him what he/she was up to than in the past. In the past, he would only have seen that coworker in the hallway and would have been more likely to merely say hello as he walked by. Like this employee, those who spent time working at a touchdown desk in the telecenter felt that they got to know a greater number of coworkers than they did in the old office, though to a much more limited extent.

- Others saw the telecenter as a place to occasionally quickly pop in and take care of specific tasks than as a place to sit and work. These employees felt that the telecenter environment was not conducive to meeting and sharing with others. One consultant socialized with the support people whom she depended upon to accomplish her tasks. When finished, she continued on her way as opposed to talking to others with whom she did not immediately need to speak.

Integration of New Employees

A challenge facing flexible work managers has been the integration of new employees. Newmarket dealt both with employees who were new to Newmarket and those who were new to Digital. The flexible work environment was not especially conducive to the integration of new employees. They had trouble getting to know their coworkers. Those from the Welwyn office only occasionally used the telecenter. When they did, they felt that although the other mobile workers were friendly, it took a deliberate effort to get to know them. One employee who was new to Digital (just out of the university) was a member of the technical consultant group. This employee was not, at first, given the tools to work from home, which forced him to work in the telecenter for some time until he got to know others and the company. Although he got to know the members of his systems integration consultant group fairly well, he did not get to know the other mobile workers.

Patterns and Modes of Communication

With less face-to-face contact with one another, it was of interest to know:

- what the effect was on various specific kinds of communication;

- whether they were more reliant on the use of information technologies, and

- which needs they were able to support with these technologies.

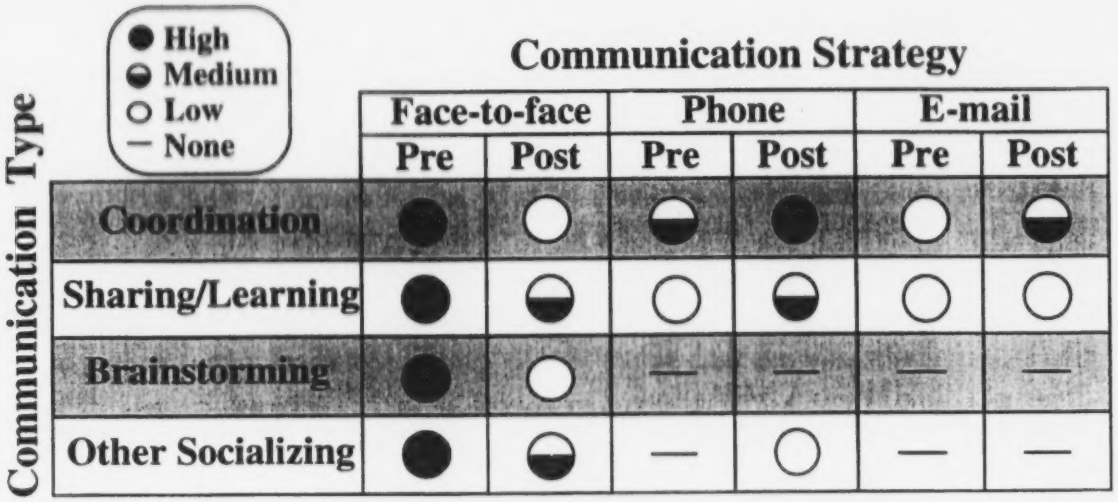


Figure 13: How strategies used for various types of communication changed after implementation of the flexible work program.

Communication to Coordinate

The role of support personnel at the telecenter became much more important for coordination than it had been. The support staff felt empowered as a result of being the ones "in the know". They had the answers to questions from, "who is in the telecenter" and "is there space for me to come in and work" to "where does John plan to be tomorrow."

E-mail and Telephone

Information technologies were increasingly relied upon to fill the coordination role that was often performed face-to-face in the old office. In the absence of face-to-face interaction, the telephone became the primary tool for coordinating details regarding meetings or activities. If time was not a factor, e-mail was used instead of or in addition to telephone messages. E-mail was also used to safeguard the message got through and get it noticed.

Communication to Inform - Sharing/Learning

When Newmarket employees all worked from the same office, necessary communications automatically occurred in the course of daily activities. In the flexible work environment, if employees didn't make a point of contacting each other, these exchanges did not happen. No longer could an employee stop by someone's office any time they had a question. For some, this was a frustrating realization:

BEST COPY AVAILABLE

> I missed being in an environment with other sales people where if I didn't know something I could just say, 'Anybody know about so and so?' And someone would say, 'Yes, go talk to Fred.' Or I could walk down the corridor to the support people... And suddenly the office was gone ... so I spent a lot of time relearning Digital, who does what and where they are. It was driving me bananas because I was spending most of my time at home on the phone trying to get support, answers to questions that before I got immediately by being in the office.

This sales manager then started calling the telecenter to ask who was in that could answer his question. He learned that there would be many people in early in the morning and in the evening but still felt he was, "playing telephone tag all day".

> So then I started to drive into [the telecenter], purely to try and resolve this problem. So I was contradicting the system. Here I was set up to work at home and I was, in effect, driving in from my office to use the same equipment here. But it was giving me an advantage in that there might be more people here that I might need.

This employee began working from the selling partner office. There he was more likely to get answers when he needed them.

Most found that they made more of an effort to be on top of things and to solve problems on their own. Some made slightly greater use of media to inform and become informed.

E-mail and Telephone

E-mail was used to a limited extent for sharing information both prior to and following the flexible work program. General information, Digital or local, was shared with many individuals at once. Individual employees used it to ask questions of a group of coworkers. A technical consultant described his use of e-mail both before and after the flexible working, "I tend to use it like an encyclopedia, to collect information. And I will post questions, but they won't be personal..."

The mobile employees became slightly more likely to call one another with questions or to share a piece of information than they would have prior to the flexible work program. In the past they would have relied on face-to-face communication: either they would locate the individual (if the information was immediately necessary) or expect to encounter him/her at some point (if the information was not immediately necessary).

Communication to Stimulate Creativity - Brainstorming

In addition to difficulty with getting work-related information quickly, difficulties arose with finding opportunities for communication to stimulate creativity: to brainstorm. Unplanned interactions with coworkers could no longer be taken for granted.

Employees who should have been interacting and trading ideas for the good of the business were not doing so in this environment. For example, it is useful for the consultants to communicate with the sales people. They give each other tips and ideas for new ways of completing tasks or newly available technologies. Sales people often find it useful to ask consultants whether certain things would be possible to do or develop and to simply brainstorm about how better to serve the customers' needs. A number of factors limited this interaction.

1. Employees rarely ran into each other by chance as mobile workers.

2. Consultants must bill for their time. Thus, if a sales person wanted to bounce some ideas around with a consultant, he/she must make an appointment with that person and he/she is then billed for that time. Thus, there was some reluctance to schedule time with a consultant. Even when that was done, as one sales manager said, "it is like trying to plan ideas."

3. Individuals were more likely to seek out those they liked and got along with than those with whom they should work but didn't really like:

> Some people you just don't get on with at work but you will work with them. And you will choose the people that you, perhaps, get on with on the social side to have more informal-type meetings. But in an office-type environment you will talk with someone that you would never think of going down to the pub with. - *Single male technical consultant*

As another technical consultant pointed out, it was possible to check each others' electronic diaries to see where particular coworkers planned to be at a given time. This was used to advantage when trying to get together with a particular coworker; it was also used to avoid particular people.

Cross-functional communication seemed to be limited to the chance person one met when in the telecenter. Part of the reason for coming to the telecenter, for some people, was to run into others with whom it might be useful to talk. A sales manager who had been with Digital for 17 years explained that he wanted to be able to see who was in the Plug and Play Center without actually knocking or getting a key to unlock the door and look in. He wished for "a window in the door." At the same time, there were no all Newmarket meetings which would have served to bring the disciplines together.

E-mail and Telephone

Neither e-mail nor telephone had been nor became a forum for communication to stimulate creativity.

General Socializing

General socializing among coworkers was significantly reduced. When mobile workers ran into one another face-to-face they often made a point to "catch up" with one another. However, such opportunities rarely arose unplanned, and employees did not plan to meet one another for general socializing purposes.

E-mail and Telephone

The mobile workers did not use e-mail for informal socializing or personal discussions of any sort. Additionally, they did not use the flexible working note file, originally developed to provide the mobile workers with a forum for social exchange regarding the struggles or joys of mobile working or any other subject they wanted to "talk" about.

Some employees felt that they were socializing slightly more on the telephone than they had prior to mobile working. While in the past, the telephone tended to be used for business only, the mobile workers felt they were somewhat more likely to spend time socializing after resolving the business purpose of the call. As a married male service manager commented:

> We use our mobile phones more often now and instead of having a quick phone call, we have more of a 20 minute social contact, saying 'How are you doing?', 'How did you get on this weekend' and that sort of stuff.

Although employees were encouraged to call one another whether there was a business reason or not, just to maintain social contact, few called just to chat. And although some spent more time socializing when on the phone it would be difficult to conclude that employees were consciously socializing on the phone more often because they were encouraged to do so in training. Rather, from employees' indications, this simply occurred without their realizing it.

3. What happened to the informal office community?

Numerous employees commented that the Digital employees in Newmarket used to feel like one big close-knit family. With mobile working, however, it felt more like a loose family with its relations extending to a wide network of distant relatives.

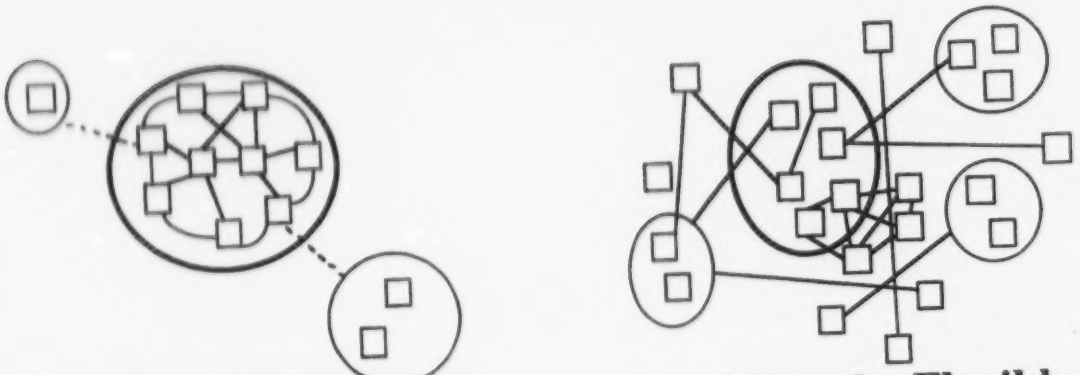


Figure 14: The close-knit office became increasingly disjointed.

Prior to implementing the flexible work program, the Newmarket employees were close and tended to know what work another was doing. Changes which were disrupting the closeness of the Newmarket employees and pushing their relationships outward included:

- reduced contact with other Newmarket employees;
- increased difficulty in coordinating social events;
- greater use of remote management and working groups from all across the country;
- increased contact with Digital equipment selling partners; and
- increased contact with ex-Digital employees.

Some of these changes were largely due to other changes occurring in Digital (particularly the use of remote management and work groups) as opposed to being directly related to flexible working. However, it is important to be aware of the range of influences affecting the flexible workers' relationships and how these influences acted together to disrupt the informal community in Newmarket.

In effect, the Digital family at Newmarket was becoming disrupted. This disruption, whether directly resulting from mobile working or not, was exacerbated by mobile working in that Newmarket coworkers interacted less often. They no longer knew what their coworkers were doing or where they were. To continue the metaphor, immediate family members saw each other less often and were encountering and spending time with more members of the extended family.

> Digital used to feel like a big close family but more recently, with all the changes, that feeling is getting lost. However, at the same time, the family has been

> extended and we are having more and more contact with others. - *Married male systems integration consultant*

> It's not the way it used to be in Digital. It's not as social. How can it be when you don't see each other anymore? We don't get together... And the whole company is going that way. It starts to feel more like a faceless machine. - *Married male sales manager*

Reduced Contact with Newmarket Employees

It was no longer possible to come in to an office and expect to see the person who sat at the next desk at some time during the day. Similarly, the person who worked down the hall was no longer there to talk to on the way to the coffee machine. There were no all Newmarket meetings and the sports and social club became less active.

Difficulty in Coordinating Events

Sports and social clubs have always played an important role in the socialization needs of Digital employees in the United Kingdom. Club dues funded various social events which were planned by the employees. Everyone agreed that the sports and social club at Newmarket was not what it used to be. In the past, nearly three-quarters paid dues and most of those regularly participated in activities. A much smaller percentage were paying dues during the time of this study and participation in the rare activity included, at best, one-fifth of the total employees.

> The sports and social club used to be quite active. There's no social scene here anymore. It consists of the secretaries. Nobody's responsible for organizing it and no one has the time anymore, to take on that task... - *Sales manager*

Like the disruption of the tight-knit family, there were multiple reasons for the decrease in sports and social participation. Again, in part due to layoffs and the high rate of turnover over the last year or so, participation in the club had been decreasing. With the move to flexible working, the organization of activities and participation in them decreased even further.

First, it was very hard to coordinate and garner enthusiasm for planned activities using e-mail.

- Instead of being able to walk around the office and encourage people to participate, proposed activities were circulated using e-mail. One sales manager felt that, "It's too hard to organize without being together. It's too easy to make an excuse over e-mail." Another described his fear of suggesting something over e-mail and having no one attend. Depending upon how the invitation was handled, they did not know who and how many had responded with interest in participating in the event. Without knowing that a certain number, or certain people in particular, were already planning to participate, others were hesitant to commit themselves.

Second, with mobile working, it was less convenient to participate in such activities.

- Prior to moving to the flexible work arrangement, employees were more likely to be in the office at the end of the day. Thus, activities that were planned for the end of the day were convenient. With flexible working, activities planned for the end of the day were usually convenient for just a handful of individuals. Those working from home some distance away and those on the road who did not need to come back through Newmarket were not interested in coming in to Newmarket for a social hour.

A male member of the systems integration consulting group who had transferred from the Welwyn office lamented Digital's social changes.

> It used to be that we had as many personal friends from within Digital as outside of Digital and these friendships carried out of the work environment to going out together at least once a week. The working environment made it easier to arrange these events as compared with the environment we are in now.

Remote Management and Working Groups

Around the time of the innovation, as a result of managerial changes, working groups were more often made up of Digital employees from all around the country. Employees felt as though they didn't really know their remote coworkers. When they did begin to develop a relationship with them, job functions changed or the individuals left the company. A systems integration consultant explained that when a potential project came up, he needed to develop a bid and in so doing, called upon members of his work group who had a particular expertise:

> Where we fall down is if we are successful in that bid, what you naturally want to do is use the same people, because those are the skills you called upon to generate the work. It would be nice to use the same people to deliver it too, but that's a whole different ballgame. You aren't necessarily going to get those people; they may not even be around.

The systems integration consultant work group in which all the employees (including the manager) were based at Newmarket, saw the manager fairly regularly. The manager met with members of the group informally over lunch at the pub or individually in a hotel lobby. However, this manager felt like he should have been having even more contact with his team.

A female consultant explained that she had seen her remote manager once and spoken with him twice in the last month. She very much missed not having anyone to say, "you did a good job on that". She felt that it was harder to be motivated by someone who is managing remotely.

Increased Contacts with and Reliance on Selling Partners

Many Newmarket employees were working more closely with their selling partner companies than ever before. This was spurred by a policy change within Digital in which it was decided that Digital would use partners to handle actual product sales. Sales people and some consultants have found it very useful to work closely with these partners, to share with them the latest technologies and equipment capabilities as well as to try to learn from them the latest consumer needs.

Since moving to the telecenter, some Digital employees began spending more time with these partners. Once the agreement was made with the partner company in Cambridge to use their facility as a telecenter, more mobile workers began spending time at this facility. From the time of the formal agreement in late January until March, per week usage had doubled from about 12 to 24 visits. By July the per week usage remained around 25. As time went on more of the visits were for longer periods. At first few lasted over three hours. Later there was an almost equal split between those lasting more than and those lasting less than three hours.

Some found the location of this office to be convenient since it was closer to their homes than Newmarket. For others, it was closer to customer locations. In addition, unlike the Newmarket telecenter, employees were always able to obtain seating in this office. As one sales manager explained, "I found that working at this facility solved many things for me. There was technical support there and a place to sit. It is also in a convenient location."

Increased Contact with Ex-Digital Employees

Digital Selling Partners

Over the year or so prior to the flexible work program at Newmarket, more and more employees were laid off or left the company of their own volition. Some Digital employees had gone to work for the selling partner with which Digital made its arrangement for telework space. Thus, going to this office was, in one employee's words, "much like going to a home away from home". By working from the partner office, Digital employees were actually maintaining contacts with past coworkers.

> A lot of my friends and colleagues have gone off and worked with partners or competition but we still try and get together and talk in the evening. It used to be all Digital and now it's a mix. They're friends that you've known for a long time but they have valuable opinions. You know, a perspective from an external company can give you a better feel for your work. - *Married male service manager*

The employees who had recently been assigned to the Newmarket office from Welwyn spent much of their time in this office space. It happened that some of them knew almost as many partner employees as Newmarket employees.

Friday Night Get Togethers

For years many of the Newmarket employees living in the same area socialized together on Friday nights. This tradition continued after mobile working and, although the same people, more of them were ex-Digital employees. Those who continued to go out with the group really valued these occasions, particularly because of the reduction of social gatherings at Newmarket.

4. What was the effect on employees' feelings of organizational connectivity and commitment?

Employees felt that Digital as a corporation in the United Kingdom was losing its social culture and that the Newmarket office had lost its close-knit family feel. They attributed both effects to Digital's downsizing and reorganizations. However, the Digital, U.K. trend toward flexible working also contributed to this feeling; employees never knew a coworker's location or the best contact method for him/her.

When the Newmarket employees became mobile, they were even more disjointed from each other and the company. Many developed stronger relationships in new areas to substitute for the reduced amount of social contact they received from their coworkers since becoming mobile workers. Some spent more of their working time in new places including selling partner offices, other Digital offices, and client offices. For some employees this redirection of their workday contacts affected their feelings of identification with Digital. In the case of a single technical consultant who was spending much of his time at the selling partner office:

> I have found I am starting to identify more with them than my Newmarket coworkers. It feels like an old job I had where I was based at the company I was consulting for instead of the company I actually worked for and my identification was with the company I consulted for.

Although others were also spending more time in different places, including non-Digital spaces, most had not experienced such a noticeable change in their feelings of identification. However, another employee using the partner office did agree that more of his social contacts were coming from that office than from Newmarket.

5. How did employees cope with the reduction in social contact?

Use of the Telecenter

When the Newmarket flexible work program first began, the telecenter was usually very crowded with everyone coming in for various reasons.

> At first the telecenter was very chaotic and very busy. People didn't know where to go. They weren't used to the flexible way of working and some didn't have the equipment to work at home. Others just couldn't cope with the change. That caused a lot of difficulties. - *Service manager (had been working with his home as his main base for about a year before the flexible working program formally began)*

It was clear that not every employee was able to come in to the telecenter at any time. Most began using the telecenter sparingly and patterns of use became more regular (early mornings, particularly Mondays and late afternoons, particularly Fridays). Rarely was the telecenter full.

In an attempt to compensate for the loss of socialization, a range of coping mechanisms evolved. For some, it was a shift in who they socialized with in the office/telecenter.

The Role of the Support Staff

While in the past they would have chatted with their colleagues, their managers, or simply those they sat near, some were now directing this interaction toward the support staff. A female systems integration consultant who had been with Digital for six years used her home as her primary work location for a couple years prior to the flexible work program. The support staff at the telecenter became very important to her, "When I drop in [to the telecenter], I talk to [the support people] more socially than I used to. They are the only ones that are always here." This consultant explained that there was a possibility that she was to be assigned a secretary based in London. She found this very upsetting, explaining that if her support people were taken away, "I really would feel like I was on my own".

There were a number of reasons for this shift toward socializing with the support staff.

- The support staff were the only ones permanently assigned to the telecenter and thus, the only people one could count on seeing when coming to the telecenter.

- They made a conscious effort to visit with the mobile workers and to welcome the new ones.

> The girls and I do try to make it a welcoming place when [the mobile workers] come in. We socialize with them so that they don't just come in, do their thing, and go out again. We think they need a bit of social contact. And we don't see them as often now, so we are pleased to see them. We don't feel guilty talking to them because it is part of our job to be social and make it home for them... And when they come in, they do tend to congregate in the our area. - *Female support staff member*

> From where I live, I could as easily go to the London office but I don't like it there. I'm comfortable here. It's a cultural thing. The resident staff there are all temporaries so it just doesn't feel as good. - *Married male systems integration consultant from the closed Welwyn office*

- The support staff became the "coordination center" of the organization. They were most likely to know where someone was, how to contact him/her, and other information that might affect the workers.

- Finally, the support area became the social "hub" through interactions among the support personnel and flexible workers. Some support staff sat in open workstations located directly in front of the entrance to the mezzanine of the telecenter. Thus, these support personnel saw the mobile workers when they entered the center, giving them the opportunity to greet the workers. The staff took advantage of this because it was a way to convey messages and update the workers with office news.

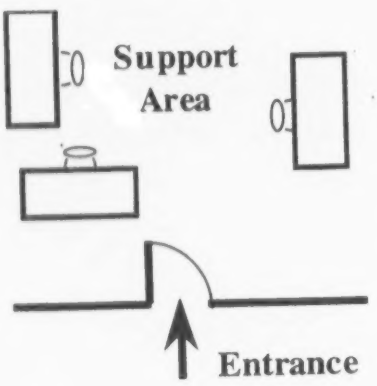


Figure 15: The entrance opened directly to the support staff area.

To understand this dynamic it is helpful to understand the reaction of the support personnel to the telecenter environment. They were much happier in the telecenter than they were in the previous office despite being housed in the very tight, drab telecenter space, all within 30 feet. Five sat in a space that was open to the main entrance to the telecenter office area. The others were located in two adjacent offices further down the hall. They appreciated the enhanced social situation the telecenter provided.

This arrangement contrasts strongly with the support staff's previous office layout in Newmarket. At that office, they were spread on three floors which limited their contact with each other. In

addition, as more and more employees were laid off or left Digital voluntarily, there were less and less staff in the office. A member of the support staff explained:

> It got to the point where, from our desks we couldn't tell if anyone else was in the office. We would call out in the morning, asking if anyone else was there and usually another secretary from across the floor would yell back. We began to feel really lonely and isolated.

Thus, unlike the mobile workers, the support people felt more like a family than they did in the past. They became closer and occasionally went out together in the evenings. They enjoyed sitting near each other and socializing while they worked. When the flexible workers came in, because they saw them so rarely, it was like having a relative who has moved away come to visit.

Many flexible workers had not shifted their social interaction to the support staff. Even they noticed, though, that the support area of the telecenter was a very friendly, social place.

Other Coping Strategies

Other mobile workers redirected their social interactions in other directions, including toward:

- Digital selling partners,
- Digital customers,
- the local community, as well as
- the development of new hobbies.

Relations with Digital Partners

A married males sales manager who tried working mainly from home at first, ended up using the partner facility, "I was getting lonely working at home. Why would I want to stay home by myself and be in the dark?"

Mobile workers who worked in the partner office became integrated into their informal networks for both work purposes (work-related questions) and non-work-related events, including joining in a monthly "quiz night." As a single male technical consultant said, "Since I've been spending more of my work time at their office, I've been getting invited along on their social outings."

Relations with Digital Customers

Others found that they were socializing more with and feeling closer to their customers.

> Initially I became closer to [my customers]. That's probably less true over time as we've gotten stretched thinner at Digital and responsibilities have changed. I'm hoping to get back to that, however. - *Married male service manager*

Another sales manager explained that he really missed the contacts he used to have with his Newmarket coworkers, particularly the social lunches at the pub. Since the flexible work program, he has made up for some of this loss by having more social contacts with his customers. He found that lunch time was convenient for many of his educational contacts because it fell between their lectures. He began scheduling lunch contacts with that group which he felt substituted for his social loss, "It's like replacing your colleagues with your customers."

Relations with the Local Community

One technical consultant explained that he was often working from home and was greatly missing the social contact he used to get at the office. Despite having a wife who worked partly from home and a family, he sometimes needed to get out and go to the local pub in the evening. "I might go out to the pub just to see people and have a conversation with someone who is not part of the family. After I've worked from home for two or three days, I feel I need to go out."

A married male systems integration consultant felt that "it could well be" that he was spending more time socializing with people he met in pubs or service personnel at hotels or restaurants since becoming mobile. "I don't know...I do think I'm more social with people I come across in day to day situations but I don't know when or why that started. I was getting lonely at home..."

Development of New Hobbies

Other employees have explored new hobbies since becoming mobile workers. One started windsurfing and another joined a gliding club. The married sales manager who started gliding explained that he wanted to develop a hobby because the sports and social club no longer coordinated recreational events. His time spent with the gliding club has become very important to him, providing him with a new outlet for social relations.

> When the social scene stopped [at Newmarket], I realized I had no hobbies. Now that I am gliding, the way I look at it, I spend five days per week working for Digital, one per week working for the gliding club, and one working for my family.

6. Are there differences in employees' reactions based upon differences in demographics or job function?

There were clear differences among the Newmarket employees in how much they noticed and were affected by the social changes brought on by the flexible work environment. Some hardly noticed the change while others felt traumatized and grieved for the lost social environment.

The Social Loss - In the Office

Certain employees came to the telecenter far more often than others. However, it was difficult to identify any consistent demographic patterns among them. It appeared to vary across gender, marital and family status, and age. As one of the support staff said:

> Some people are quite naughty and are hardly mobile workers at all. They spend a lot of time in the telecenter. It seems like more men than women, but there are more men... It just seems to be a personality thing.

Family Status

- The single employees very much missed the interaction they had with all the employees in their previous traditional office. As a single consultant explained, "I've been very sad about the change. I miss the interaction with the people in the office. It's gotten better but at first I was very distraught ...I think there should be more office-based type socializing."

- At the same time, many of those with families at home also very much missed the social interaction they had prior to becoming teleworkers. As a service manager with a family said,

> Although I don't yearn for the old office, I do yearn for some of the old office social aspects. I miss going out at lunch time. That's not convenient now so we do that less. And there was a much stronger sports and social club.

And again, despite having his family at home with him, a consultant missed interaction with people outside his family and as a result, went out to the pub in the evening for social contact.

Gender

Unfortunately just two female mobile workers were included in the sample, making it difficult to draw conclusions as to gender differences. However, the two women were less fazed by the change to mobile work than many of the other interviewees. For example, a married female systems integration consultant explained that becoming a mobile worker "was not a big loss". She

felt there were two reasons for this: 1) she is not a very social person, and 2) she has been working from home increasingly over the last couple years. In fact, when everyone became mobile workers, she felt "more like part of the group." She has never thought of her work in social terms and although she has noticed that things are less social now, it hasn't bothered her. The other woman indicated that she had a lot of friends outside her job and didn't expect her job to provide her social life. She was, however, part of the group that had been socializing for years on Friday nights and was glad they were still doing that.

The Social Loss - Sports and Social Activities

Family Status

- Employees with families were less likely to participate in the sports and social activities prior to the flexible work program and missed them less after implementation of the program than single employees. Some of those with families stated that they had never really participated in the club because they would rather be home with their families.

Home Location

- Distance employees lived from the office influenced participation in the sports and social activities. Those with a long commute were more likely to want to head home than stay on or come back after work for a social event.

Thus, those individuals with families and those with long commutes to Newmarket have been less affected by the reduction in social activities that occurred since the inception of the flexible work program.

Differences by Job Function

There are some consistencies that seem to hold true across job functions with respect to adjustment to the flexible work environment.

Consultants

Systems Integration Group

Most of the systems integration management consultants were not greatly affected by the change to flexible working. Their jobs require them to spend much of their time at customer sites when they were on a customer project and they were used to working on teams of Digital employees from

multiple locations. At the time of this study, a small group had been working together for some time on a project which often required use of the telecenter's plug and play center. Working together in this way probably also contributed to their being less affected by the change.

The difficulty for some systems consultants came when the consultancy work got slow. During those times, they ended up spending much of their time at home. These times were difficult for one consultant.

> If I had enough work I would be at customer sites most of the time and sometimes at the telecenter or at home. Since I have not had much work, I have spent a lot of time at home. For me, it is almost a sanity seeking move to come in to the telecenter. It is not a total business need or practical need. I just decide I need to go talk to someone face-to-face.

Technical Consultants

This group had a harder time with the loss of the social side of the office. They have traditionally worked mostly in the office on sophisticated, specialized equipment using the latest software. They sat together and tended to rely on each other to stay abreast of the latest developments in their field. They exchanged questions, answers and ideas throughout the day.

In the telecenter, the technical consultants could not come in, sit together and work all day like they had. And, unlike some of the other mobile workers, they did not have enough customer contact to displace, at least the social portion of this loss, toward another group. One has, over time been able to develop a similar working relationship with individuals in the selling partner office to fulfill his needs for a network of people to share and learn from as well as to socialize with on more personal levels. Others had not found a replacement for the former office environment and were having a harder time as flexible workers.

In addition, the technical consultants have many frustrations with mobile working, from not having the necessary equipment available when they've come in, to not being able to get the same support that they used to have just by sharing with one another. One consultant complained about having to "carry around piles of manuals to and from home and the telecenter". This consultant also explained that he felt "vulnerable when working at home...with all the downsizing". He felt that it would be "even easier to get rid of a person who is already out of sight".

Sales Personnel

Management had the perception that sales personnel were having difficulty adjusting to mobile work because of their personality type. However, the interviews suggested that the social aspect may not have been as problematic to most of the sales people as all the other adjustments they had

to make. For instance, a company-wide managerial change implemented at about the same time as Newmarket went to mobile working reduced the amount of technical support provided to sales personnel. They felt that the flexible work environment also contributed to their difficulty in getting technical help since they could no longer go down the hall to get help when they had a problem. As one sales person described, "I have a problem at home; I can't print. I've tried all sorts of contingencies. And the answer is, 'Bring your whole set up to [another Digital office that provides systems support]. But that's crazy."

> I've got two laptops but I don't use them because it's such a pain to try to hook them up... I don't know of many people in sales who have actually cracked that problem. If you want to computerize your sales force, you should give them a system that's already set up...

> I think productivity goes down because you're less effective. You work harder to achieve the same things. You spend more time getting yourself set up, planning things... If I had to go on to sell teleworking as a new concept that gives financial savings and great increases in productivity, I would be kidding myself.

Although they tended to miss the camaraderie and socialization of the former Newmarket office, this has either been a relatively minor issue or one in which the social side could be accommodated in new ways. Although one sales person explained that he didn't feel that he was particularly affected by the social changes, he indicated that he was spending more time with customers and the Friday night gatherings at the pub have become more important to him.

Customer Service Personnel

Customer service is another Digital function that has always involved a high degree of customer contact. A customer service manager explained that he missed the office camaraderie also but felt that this change, as well as the reduced participation in the sports and social club, had been occurring prior to the flexible working program at Newmarket, and is largely an artifact of Digital's downsizing program. Despite the fact that he felt that he had less social contact with other Newmarket employees, he did not feel that this was a major issue.

> I still have lots of contact with Digital employees. I see the service people who also work in my area, I come in [to the telecenter], and I go to other Digital offices, attend management meetings... I guess I'm out with people a lot...more than some of the technology people who spend a lot of time at home.

This individual had been home-based for about a year before Newmarket changed to flexible working because his home, his coworkers, and their customer base were about an hour's drive east of Newmarket. Thus, he has, over time, developed better relations in other areas (employees and customers in his area) prior to the formal implementation of the flexible work plan. His experience was similar to that of the other service person who was interviewed.

Summary of Key Findings

Communication

- Mobile workers developed a new appreciation for face-to-face contacts. They spent less time together as mobile workers but when they were together, spent more time socializing.

- Unplanned interactions involved intense sharing and catching up with one another. Meetings, which once were considered an annoyance and not taken seriously, were now eagerly anticipated. The mobile workers actively participated in and appreciated them.

- Socialization was both formal (planned meetings) and informal (organizational learning, informal sharing and trust-building, and simply spending time with friends). Informal socialization declined significantly, in part because the formerly active sports and social club disintegrated in the flexible work environment.

- Different types of socialization occurred in different locations. Planned meetings were held in the telecenters and other Digital offices, as well as hotel lobbies and a nearby supermarket. Informal socializing (including work-related topics) occurred over pub lunches or in the supermarket cafeteria, depending upon the time of day and how much time was available.

- Cross-functional and brainstorming communications were primarily handled face-to-face and, as a result, were less common in the flexible work environment. Communications to inform and to coordinate were more often handled using information technologies in the new environment than they had been in the past. Virtually no social communication or non-administrative/logistic work-related communication took place using electronic mail.

- In the flexible work environment, the close-knit family atmosphere which had characterized the Digital Newmarket office evolved into a disjointed extended family. Flexible working was not the cause of this change. The series of reorganizations and layoffs driven by poor financial performance over the past several years was the major change factor. Mobile working just exacerbated the problem with its fewer and less predictable opportunities for face-to-face contact in the office.

Coping Mechanisms

- The telecenter support staff, as the only permanent staff, became the focal point of coordination and socialization activities. In many ways their role was evolving, informally, to that of a concierge.

- Several employees spent more of their working and social time with other work-related contacts they met in the customer's or Digital selling partner's offices.

- Coping strategies also included turning to the local community (i.e., going to the local pub in the evening to get out of the house), and the development of new hobbies and recreational activities involving community groups and resources.

Job-Related Differences

- Although definite patterns were difficult to discern across job types, service employees and systems integration consultants who had busy work schedules at client sites seemed least concerned about the social changes in the workscape.

- Sales peoples' reactions were mixed. Some were relatively unconcerned while others had a difficult time adjusting to both the social changes and the inconvenience in obtaining the technical support for mobile work.

- The technical consultants who had worked near each other in the office prior to the program were having a difficult time adjusting.

Family and Gender-Related Differences

Although the sample did not include enough single or female mobile workers to draw firm conclusions, it appeared that:

- Those with families at home greatly missed the social aspects of the conventional office.

- The two female mobile workers included in the sample, although aware of the social changes, were less concerned and affected by them than the rest of the (male) interviewees.

Discussion

Digital's flexible work program at Newmarket represents an example of an integrated workplace strategy. It combined a variety of work settings with the information technology necessary to enable mobile work to occur any time and any place. Overall, the findings suggest that this new mobile work pattern has been successful from an organizational perspective. The response was more mixed in terms of individual employees' reactions.

Communication

Clearly, employees felt they had lost valuable opportunities not just for informal social contact, but also for work-related communication. Contrary to expectations, information technology, most notably e-mail, had not filled the breach. While more use had been made of e-mail for communication to coordinate activities, we found virtually no use of e-mail for either social or work-related communication to discuss issues, experience, events, or to give or receive technical assistance. Findings from other studies (Becker, Tennessen et al., 1995; Sproull & Kiesler, 1991) suggest that people can and do, however, use e-mail and electronic bulletin boards for an extraordinarily wide range of social purposes (Rheingold, 1993) ranging from romance to discussions of the latest movies or last weekend's mountain climbing. Why such uses have not emerged at Digital is unclear. Formal or informal management restrictions did not appear to contribute to the narrow focus. More likely, it was simply that this group of rather gregarious sales folks simply did not feel comfortable "chatting" or socializing electronically. Few of them had, however, tried using e-mail conversationally, so their use patterns were formulated not so much by negative personal experience as by continuing to seek communication channels that were familiar. Whether this might change over time is unclear, though there is evidence that more technically-oriented professionals do use e-mail conversationally to complement and supplement face-to-face communication (Becker, Tennessen et al., 1995). As the Newmarket sales staff becomes more technically competent and comfortable, it is possible that their use of e-mail will broaden.

Particularly troubling was the loss of informal, spontaneous work-related discussions. It is in unplanned conversations with colleagues that much of the "real" work of a job is learned. As people talk around the proverbial water cooler, in the cafeteria, or perched on the corner of a desk they build a "community of practice" which defines expectations, generates group norms, and through myriad ways creates the informal learning organization (Brown & Duguid, 1991; Lave & Wenger, 1990). Mobile work reduces opportunities for this contact. Unless formal or informal face-to-face social contacts or electronic ones are substituted, over time organizations run the risk

of having no effective way to support informal teaching or learning on the job. It is this aspect of mobile work, as much or more so than the loss of social contact per se, that may be the hidden land mine of the virtual organization.

Influence of the Telecenter Design

Few negative comments about the physical characteristics of the telecenter surfaced in interviews. Given the density of use, in which three sales staff often shared a table in a small room, and that the office space was carved from warehouse space with only minimal attention to the aesthetic quality of the environment, this was surprising. Yet for most persons interviewed the telecenter focus was not on its design quality, but on its social characteristics. People liked knowing everyone who came in and out; it felt more like a family than a large impersonal corporate office. There were times when coworkers who encountered one another at the telecenter would have liked to meet right there, but could not because of the lack of space. Despite knowing that it was acceptable to move the conversation to any of a variety of local establishments, there undoubtedly were times when getting in their cars to drive to a meeting location even less than five minutes away was considered too time consuming. As a result the interaction either did not occur or was cut short. Given the importance of informal communication, it would seem worthwhile, even when reduced overhead costs are paramount, to include in the design some good places for informally getting together. These could be supplemented with nearby offsite locations.

Business and Personal Communication

As noted earlier, traditionally, the workplace has been an important source of both social contact and informal on-the-job training. With mobile work, these opportunities decline *in the office*. It may be that the community takes on an expanded role as mobile workers seek other nonwork locations for information and contact.

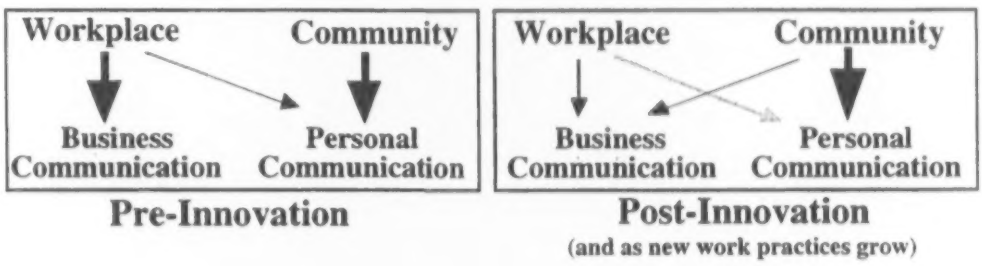


Figure 16: Potential evolution of business and personal communication.

It is possible, for instance, that workers may seek more contact with local businesses for expertise they need (i.e., office-related services such as copying, mailing, videoconferencing). And when interacting with these businesses, they may be more likely to ask for information and assistance that they had previously found in their own offices: help with running a computer application, or using the copy machine, where to get the best electronic equipment, or gossip about what firms in the area are doing. "Smart" communities may even begin to plan for these formal and informal services, providing everything from computer support to professional support groups. Thus the move toward mobile work may revitalize some communities and spur them to develop new businesses and services designed to support mobile workers. Adaptations the mobile workers made to cope for reduced social opportunities at the office may work in the same direction. While respondents did not use electronic technologies to cope with the reduction of social opportunities at work, they did actively explore alternatives that included taking up new hobbies and sports that brought them into contact with a different circle of people in their general residential area.

According to Brief (1985), while substitutes for work-related interactions can be found at home, including interactions with family members and friends outside of work, the efficacy of such substitution remains open to question. The Diebold Group (1981) reports from their survey that teleworkers who were involved in the community and other nonwork-related activities felt no less isolated than those who were not, and that those who did not complain of isolation in their work tended to participate in solitary social activities as well. This suggests that family and community activities may not be effective substitutes for the social world of the office (Diebold Group, 1981). It may be that these activities can function as a temporary fix for social isolation but do not help one feel any more connected when it comes to job-related socialization. It is also likely that the shift to more community-based support for work and social contacts would take longer to establish than the period of experience most studies consider.

Other coping strategies suggested new roles for support staff, who took on added importance in the mobile office. They, rather than professional staff, more often found themselves organizing social events and outings, since they were the ones in the office on a regular basis. Thus the definition of a "good" secretary or administrative support person might well shift in the mobile work environment from someone who is extremely well-organized and thorough, to one who has the capacity to bring people together. In effect, there is an emerging role for key support staff to act as "social directors" who help people working independently feel socially connected when they do come into the office.

Other strategies for dealing with the loss of social contact in the conventional office included staff getting together with "mates" they used to work with regularly, including some who had now left the company. The implications of this for the company are intriguing. Turnover is generally

viewed negatively, yet human resources experts like Jeffrey Pfeffer at Stanford University's Graduate School of Business have argued that turnover can be positive. It is one of the ways in which new ideas are pollinated across companies. The fact that for at least some Digital respondents the social bonds were stronger than the new corporate barriers, leading people to maintain friendships initiated at Digital even after their friends left the company, may stimulate organizational learning through a kind of informal benchmarking across companies. Here, too, mobile work may have an unanticipated benefit. What is striking, however, is that despite individual efforts to overcome the more fragmented social contact and communication with coworkers, and the group's manager's attempts to stimulate communication out of the office, there was still a significant sense of loss among respondents.

Overall Assessments

To make sense of the overall impact of the flexible work program, the social side of the equation needs to be balanced by the work effectiveness or performance side. The evidence is interesting, and comes from a study by another independent research group (Horack & Adler, 1994, 1995). They compared Digital Newmarket mobile workers with a comparable group within Digital working more conventionally.

Nearly 90 percent of the employees surveyed by Horack & Adler (1995) felt that day to day personal and social contacts with colleagues were "important" or "very important" to their job satisfaction. Employees also valued feedback and contact with their immediate supervisors and managers. While the flexible work group reported both immediately after implementation and a year later that managerial communication was lacking (including performance evaluation), so did the comparison group! Thus, these issues would seem to be related more to the general upheaval in Digital's overall management structure and organization than to flexible working.

A difference was demonstrated with respect to morale. The comparison group, after one year, reported both more low and high levels of morale. The flexible work group moved from low to average (Horack & Adler, 1995). The flexible work group also reported much better time usage after a year as mobile workers than did the comparison group of nonmobile workers. A year after implementation the mobile workers were spending considerably more time at customer sites and less time in an office than their counterparts (Horack & Adler, 1995). This was, of course, one major objective of the flexible work program.

There was a sense of social loss among employees, but *at least so far* no evidence that customers had been negatively affected or poorly served. One reason, worth stating, is that staff with a strong sense of professional pride and fearful for their livelihood are prepared to work very hard,

indeed, to make things work. After a year in a mobile work environment, the survey data suggested that morale was improving and that time was being better spent. The interview data paint a less sanguine picture. They describe staff struggling to maintain meaningful social *and* work-related contact. Both are likely to be true.

Surveys may miss the small details, like the fact that some staff now time their visits to the office to avoid other staff they dislike but with whom they should be interacting; or that one can ultimately get technical assistance, but that it takes more time and effort, effort that slowly becomes frustrating and debilitating. At the same time surveys capture the fact that because people are unhappy with aspects of their jobs does not mean they are not productive. The most interesting findings are that the survey data suggests morale is improving, while the interview data did not. In the long run the effort dedicated workers must make to overcome obstacles to working effectively takes its toll, and it is this longer term impact that our study could not assess.

Conclusion

In the fluid work world today, there is no single, irrefutable measure or declaration that "it worked or it didn't." Rather, what emerges is a picture of an organization and individuals in transition. Some aspects of their new ways of working (like the greater flexibility in use of time and space) are positive, some are not (like the greater sense of social isolation). For the organization, the results are generally uplifting. Space has been saved, customers are no less happy, and many staff are quite satisfied, and generally becoming more so over time. For individuals the transition is more personal, and more uneven. For both, the only safe prediction is that the workplace will continue to evolve, and that it is likely to have more elements of mobility than stability.

References

Ahrentzen, S. B. (1990). Managing Conflict by Managing Boundaries: How Professional Homeworkers Cope with Multiple Roles at Home. *Environment & Behavior, 22*(6), 723-752.

Alexander, M. (1990). Travel-Free Commuting. *Nation's Business, 78*(12), 33, 36-37.

Allen, M. W. (1992). Communication and Organizational Commitment: Perceived Organizational Support as a Mediating Factor. *Communication Quarterly, 40*(4), 357-367.

Allen, T. J. (1977). *Managing the Flow of Technology: Technology Transfer and the Dissemination of Technological Information Within the R&D Organization.* Cambridge, MA: MIT Press.

Alvi, S., & McIntyre, D. (1993). The Open-Collar Worker. *Canadian Business Review, 20*(1), 21-24.

Becker, F. D. (1981). *Workspace: Creating Environments in Organizations.* New York: Praeger.

Becker, F., & Joroff, M. (1994). *An English Perspective on New Workplace Strategies* (CRE 2000 Workplace Bulletin 3). Norcross, GA: IDRF (International Development Research Foundation).

Becker, F. D., Quinn, K. L., & Callentine, L. U. (1995). *The Ecology of the Mobile Worker.* Ithaca, NY: Cornell University International Workplace Studies Program.

Becker, F. D., Quinn, K. L., Rappaport, A. J., & Sims, W. R. (1993). *New Working Practices: Benchmarking Flexible Scheduling, Staffing, and Work Location in an International Context.* Ithaca, NY: Cornell University International Workplace Studies Program.

Becker, F. D., & Steele, F. (1995). *Workplace by Design: Mapping the High-Performance Workscape.* San Francisco: Jossey-Bass Publishers.

Becker, F. D., Tennessen, C. M., & Young, D. (1995). *Information Technology for Workplace Communication.* Ithaca, NY: Cornell University International Workplace Studies Program.

Bikson, T. K., & Eveland, J. D. (1988). Work Group Structures and Computer Support: A Field Experiment. *Transactions on Office Information Systems, 6*(4), 354-379.

Brief, A. P. (1985). Effects of Work Location on Motivation. In Board on Telecommunications and Computer Applications, Commission on Engineering and Technical Systems, National Research Council (Eds.), *Office Workstations in the Home*, (pp. 66-75). Washington, DC: National Academy Press.

Brown, J. S., & Duguid, P. (1991). Organizational Learning and Communities-of-Practice: Toward a Unified View of Working, Learning, and Innovation. *Organizational Science, 2*(1), 40-57.

Coates, M. L. (1991). *Work and Family Issues: Beyond "Swapping the Mopping and Sharing the Caring."* Kingston, Ontario, Canada: Queen's University Industrial Relations Centre.

Craipeau, S., & Marot, J.-C. (1984). *Telework: Impact on Living and Working Conditions.* Dublin, Ireland: European Foundation for the Improvement of Living and Working Conditions.

Crouter, A. C. (1984). Spillover from Family to Work: The Neglected Side of the Work-Family Interface. *Human Relations, 37*(6), 425-441.

de Jonge, H. (1992). *FM and Key Issues for Real Estate.* Paper presented at the European Conference on Facility Management, Brussels, Belgium.

Diebold Group. (1981). *Office Work in the Home: Scenarios and Prospects for the 80s.* New York: Diebold Group.

DuBrin, A. J. (1991). Comparison of the Job Satisfaction and Productivity of Telecommuters Versus In-House Employees: A Research Note on Work in Progress. *Psychological Reports, 68*(3, Pt 2), 1223-1234.

Forester, T. (1987). *High-Tech Society: The Story of the Information Technology Revolution.* Cambridge, MA: The MIT Press.

Gerson, J. M., & Kraut, R. E. (1988). Clerical Work at Home or in the Office: The Difference It Makes. In K. E. Christensen (Ed.), *The New Era of Home-Based Work: Directions and Policies* (pp. 49-64). Boulder, CO: Westview Press.

Gordon, G. E. (1988). The Dilemma of Telework: Technology vs. Tradition. In W. B. Korte, S. Robinson, & W. J. Steinle (Eds.), *Telework: Present Situation and Future Development of a New Form of Work Organization* (pp. 113-136). New York: Elsevier Science.

Gordon, G. E., & Kelley, M. M. (1986). *Telecommuting: How to Make It Work For You and Your Company.* Englewood Cliffs, NJ: Prentice-Hall, Inc.

Greenglass, E. R., Pantony, K. L., & Burke, R. J. (1988). A Gender-Role Perspective on Role Conflict, Work Stress and Social Support. In E. B. Goldsmith (Ed.), *Work and Family: Theory, Research and Applications* (pp. 317-328). Newbury Park, CA: Select Press.

Gurstein, P. (1991). Working at Home and Living at Home: Emerging Scenarios. *Journal of Architectural & Planning Research (Special Issue: The Meaning and Use of Home), 8*(2), 164-180.

Hammer, M., & Champy, J. (1993). *Reengineering the Corporation: A Manifesto for Business Revolution.* New York: Harper Business.

Handy, C. (1990). *The Age of Unreason.* Boston: Harvard Business School Press.

Heilmann, W. (1987). *Tele-programmierung.* Wiesbaden: Die Organisation der Dezentralen Software-Produktion, Forkel-Verlag. (Discussed and referenced in U. Huws, W. B. Korte, & S. Robinson, *Telework: Towards the Elusive Office* [West Sussex, UK: John Wiley & Sons Ltd.].)

Heilmann, W. (1988). The Organizational Development of Teleprogramming. In W. B. Korte, S. Robinson, & W. J. Steinle (Eds.), *Telework: Present Situation and Future Development of a New Form of Work Organization* (pp. 39-58). Amsterdam, The Netherlands: North Holland Publishing Company/Elsevier Science Publishers B.V.

Horack Adler & Associates. (1994). *Opening of Newmarket Telecentre: Digital [Equipment Co. Limited] Evaluation and Measurement Programme, First Phase Results.*

Horack Adler & Associates. (1995). *Opening of Newmarket Telecentre: Digital [Equipment Co. Limited] Evaluation and Measurement Programme, Phase Two Results (draft).*

Huff, C., Sproull, L., & Kiesler, S. (1989). Computer Communication and Organizational Commitment: Tracing the Relationship in a City Government. *Journal of Applied Social Psychology, 19*(16), 1371-1391.

Huws, U., Korte, W. B., & Robinson, S. (1990). *Telework: Towards the Elusive Office*. Chichester, UK: John Wiley & Sons.

Izraeli, F. N. (1988). Burning Out in Medicine: A Comparison of Husbands and Wives in Dual-Career Couples. In E. B. Goldsmith (Ed.), *Work and Family: Theory, Research and Applications* (pp. 329-346). Newbury Park, CA: Select Press.

Korte, W. B. (1988). Telework--Potential, Inception, Operation and Likely Future Situation. In W. B. Korte, S. Robinson, & W. J. Steinle (Eds.), *Telework: Present Situation and Future Development of a New Form of Work Organization* (pp. 159-175). New York: Elsevier Science.

Krackhardt, D., & Hanson, J. R. (1993). Informal Networks: The Company Behind the Chart. *Harvard Business Review, 71*(4), 104-111.

Kraut, R. R., Fish, R. S., Root, R. W., & Chalfonte, B. L. (1990). Informal Communication in Organizations: Form, Function, and Technology. In S. Oskamp & S. Spacapan (Eds.), *People's Reactions to Technology in Factories, Offices, and Aerospace (Proceedings of The Claremont Symposium on Applied Social Psychology)* (pp. 145-199). Newbury Park, CA: SAGE Publications.

Lange, B. P., Kubicek, H., Reese, H., & Resse, J. (1990). *Sozialpolitische Chancen dei Informationstechnik* (originally published in 1982 by Campus Verlag, Frankfurt). (Discussed and referenced in U. Huws, W. B. Korte, & S. Robinson, *Telework: Towards the Elusive Office* [West Sussex, UK: John Wiley & Sons Ltd.].)

Lave, J., & Wenger, E. (1990). *Situated Learning: Legitimate Peripheral Participation* (Research Report 90-0013). Palo Alto, CA: Institute for Research on Learning.

Lohmar, U. (1990). *Die neue Heimarbeit mit Mikroelektronik und Telekommunication Aspecte einer veranderten Arbeitswelt* (unpublished manuscript, 1984). (Discussed and referenced in U. Huws, W. B. Korte, & S. Robinson, *Telework: Towards the Elusive Office* [West Sussex, UK: John Wiley & Sons Ltd.].)

Louis, M. R., Posner, B. Z., & Powell, G. N. (1983). The Availability and Helpfulness of Socialization Practices. *Personnel Psychology, 36*(4), 857-866.

M.I.T. Artificial Intelligence Laboratory. (1995). Digital Equipment Corporation (DEC) [Company Report from the AI Laboratory's Experimental Stock Market Data Server]. Available FTP: ftp.ai.mit.edu Directory: /pub/stocks/results File: DEC.

Manning, R. A. (1985). Control Data Corporation: Alternate Work Site Programs. In Board on Telecommunications and Computer Applications, Commission on Engineering and Technical Systems, National Research Council (Eds.), *Office Workstations in the Home* (pp. 38-50). Washington, DC: National Academy Press.

Martino, V., & Wirth, L. (1990). Telework: A New Way of Working and Living. *International Labour Review, 129*(5), 529-554.

Morton, M. S. S. (Ed.). (1991). *The Corporation of the 1990s: Information Technology and Organizational Transformation*. New York: Oxford University Press.

Olson, M. H. (1981). *Remote Office Work: Implications for Individuals and Organizations* (CAIS 81-56). New York: New York University Graduate School of Business and Administration.

Olson, M. H. (1985). The Potential of Remote Work for Professionals. In Board on Telecommunications and Computer Applications, Commission on Engineering and Technical Systems, National Research Council (Eds.), *Office Workstations in the Home* (pp. 125-132). Washington, DC: National Academy Press.

OneSource Information Services Inc. (1994). Digital Equipment Corp. [Company Profile Report output by CD-ROM database]. Available: OneSource's CD/Corporate: U.S. Public Companies.

Orpen, C. (1993). The Effect of Organizational Cultural Norms on the Relationships between Personnel Practices and Employee Commitment. *Journal of Psychology, 127*(5), 577-579.

Ostroff, C., & Kozlowski, S. W. J. (1992). Organizational Socialization as a Learning Process: The Role of Information Acquisition. *Personnel Psychology: A Journal of Applied Research, 45*(4), 849-874.

Parker, G. (1994). *Cross-Functional Teams: Working with Allies, Enemies, and Other Strangers*. San Francisco: Jossey-Bass Publishers.

Perrolle, J. A. (1991). Conversations and Trust in Computer Interfaces. In C. Dunlop & R. Kling (Eds.), *Computerization and Controversy: Value Conflicts and Social Choices* (pp. 350-363). San Diego: Academic Press.

Pleck, J. H., & Staines, G. L. (1985). Work Schedules and Family Life in Two-Earner Couples. *Journal of Family Issues, 6*(1), 61-82.

Pratt, J. H. (1983). *Home Teleworking: A Study of Its Pioneers*. [Place of publication?]: Allied Professionals Educational Consulting Service.

Rapoport, A. (1970). Symbolism and Environmental Design. *International Journal of Symbology, 1*(3), 1-9.

Repetti, R. L., & Cosmas, K. A. (1991). The Quality of the Social Environment at Work and Job Satisfaction. *Journal of Applied Social Psychology, 21*(10), 840-854.

Rheingold, H. (1993). *The Virtual Community: Homesteading on the Electronic Frontier*. Reading, MA: Addison-Wesley.

Salomon, I., & Salomon, M. (1984). Telecommuting: The Employee's Perspective. *Technological Forecasting and Social Change, 25*(1), 15-28.

Sproull, L., & Kiesler, S. (1991). *Connections: New Ways of Working in the Networked Organization*. Cambridge, MA: The MIT Press.

Sundstrom, E., De Meuse, K. P., & Futrell, D. (1990). Work Teams: Applications and Effectiveness. *American Psychologist, 45*(2), 120-133.

Tjosvold, D. (1991). *Team Organization: An Enduring Competitive Advantage*. Chichester, UK: John Wiley & Sons.

Voydanoff, P., & Kelly, R. F. (1984). Determinants of Work-Related Family Problems Among Employed Parents. *Journal of Marriage and the Family, 46*, 881-892.

Wilkes, R. B., Frolick, M. N., & Urwiler, R., (1994). Critical Issues in Developing Successful Telework Programs. *Journal of Systems Management, 45*(7), 30-34.

Zahn, G. L. (1991). Face-to-Face Communication in an Office Setting: The Effects of Position, Proximity, and Exposure. *Communication Research, 18*(6), 737-754.